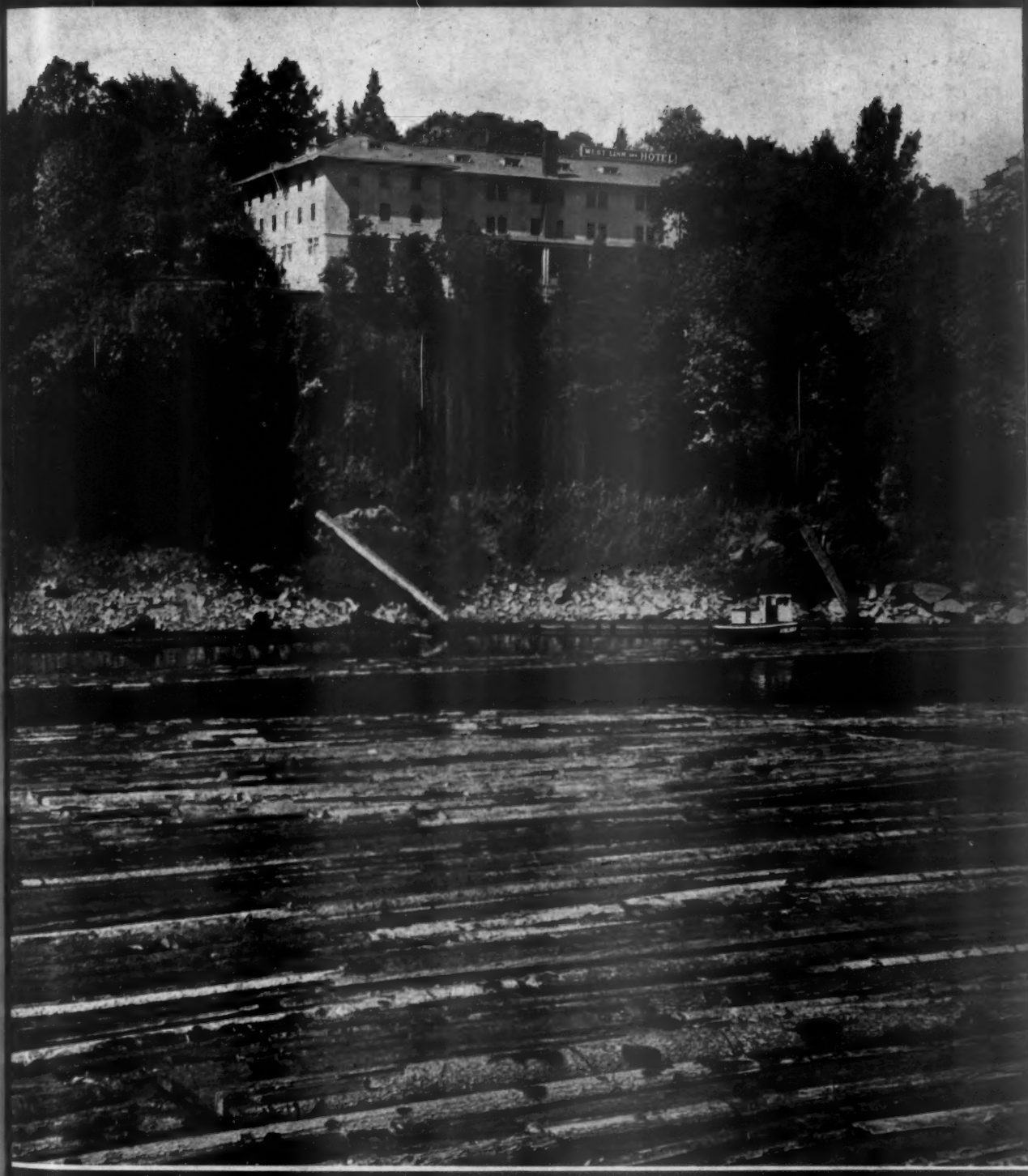
ERTY OF THE
PUBLIC LIBRARY

PULP & PAPER INDUSTRY



21 YEARS CONTINUOUS OPERATION

...and STILL GOING STRONG

Seattle Cedar Lumber Manufacturing Company, World's Largest Mill Devoted Entirely to Production of Cedar Lumber.

You have a right to expect gears to be good. That is the way we make them. For example: The Pacific-Western Gear Reducer pictured here operates a log haul at Seattle Cedar Lumber Manufacturing Company. After 21 years of unfailing service on one of the toughest assignments in the mill, starting and stopping hundreds of times a day under heavy load conditions, it is still "going strong" and is good for years more of service.

Such performance is not just happenstance. THERE ARE 56 OTHER PACIFIC-WESTERN REDUCERS IN THIS PLANT WITH THE SAME RECORD. They were engineered and built to do the job. More than fifty years' experience has taught us how to build geared products that last.

Recent additions of high-precision machine tools, testing and inspection equipment enable us to produce gears and geared equipment accurate to the highest demands of industry . . . of today and tomorrow. From the gears you get from Pacific-Western you will receive the service you expect.

●

WESTERN GEAR WORKS
417 9th Ave. South — Seattle 4, Wash.

11181 Long Beach Blvd. — Lynwood, Calif.

PACIFIC GEAR & TOOL WORKS
1035 Folsom St. — San Francisco 3, Calif.

PACIFIC WESTERN GEAR PRODUCTS

PLANTS: SEATTLE, LYNWOOD, VERNON, SAN FRANCISCO

Pacific PULP & PAPER Industry

The Management Journal Covering North America's Wood Pulp, Paper and Cellulose Industries

OCTOBER • 1944

Vol. 18 No. 10

MILLER FREEMAN
President

LAWRENCE K. SMITH
Manager

ALBERT WILSON
Editor

MILLER FREEMAN, JR.
Circulation Manager

PUBLISHING OFFICE
71 Columbia St.
Seattle 4, Wash.
Tel. MAin 1626

EASTERN HEADQUARTERS
Nard Jones
Associate Editor
370 Lexington Ave.
New York 16, N. Y.

OTHER OFFICES
Chester A. Fee
Associate Editor
1220 S. W. Morrison St.
Portland 5, Ore.
Tel. AT. 9593-9594

Stuart Leete
121 Second St.
San Francisco 5, Calif.
Tel. GA. 5887

Arthur Ponsford
124 W. Fourth St.
Los Angeles 13, Calif.
Tel. MUtual 8196

Charles L. Shaw
675 W. Hastings St.
Vancouver, B. C.
Tel. Marine 1520

Contents Copyrighted 1944 by Miller Freeman Publications, Inc.

SUBSCRIPTION RATES

United States	$4.00
Canada	$4.50
Other Countries	$5.00
Single Copies	$ .35
Review Number	$1.00

Editorials

A GREAT ACHIEVEMENT

WITH less manpower, less trucks, less tires and practically less of everything that is essential to production, the pulp, paper and paperboard production of North America has actually increased, rather than diminished, in the past year.

The total paper output so far is still slightly ahead of last year's record to date. Now this is largely paperboard. Meanwhile much more wood pulp is going into smokeless powder and tire cord.

This achievement, in perhaps the most critical year of its entire history, is one that should be publicized the length and breadth of both the United States and Canada. To show an increase in this past year in production, despite the great handicaps it has faced, is something of which the North American pulp and paper industry can truly be proud.

Something ought to be done about broadcasting this news to press and the public of these two great countries. We are doing our bit about it and it has been a source of some satisfaction that reports in this magazine have occasionally been quoted in newspapers of the two nations. It is in this period of trial that the public and the press—which are both so dependent upon paper—can really become aware of how important the North American pulp and paper industry is. Maybe they will both remember it in future years.

FOR PRODUCTION—NOT CURTAILMENT

Credit for this achievement is also shared by new blood injected in the War Production Board a year ago. It was then that industry men and men who believed in production and not curtailment, took charge. Some of these industry men now have left the WPB and it is only fitting that some recognition of their great work should be made.

It was a little more than a year ago that Harold Boeschenstein took charge of the new Forest Products Bureau of the WPB. The American Paper and Pulp Association has paid glowing tribute to him and to the men he drew from the pulp and paper industry for their achievements, which, of course, were accomplished by industry-government cooperation.

In starting with the problem in the woods, personnel of the Forest Products Bureau were successful in establishing many war prisoner camps, raising the urgency rating of essentiality for woods workers, obtaining replacement trucks and parts, and stimulating the use in the woods of mechanized equipment. In the field of paper and paperboard production, strong, positive waste paper campaigns were instituted which have raised the level of collection to very close to the theoretical peak, while the pulpwood campaign has maintained or increased pulp production. Through these measures the War Production Board has been enabled in most instances to plan for the heavy additional war burden placed on the paper industry by the direct requirements of the Army and Navy.

Mr. Boeschenstein and his assistants—Rex W. Hovey, H. G. Boon, J. L. Madden (those three are back in private industry now), H. O. Nichols, W. H. Kenety, Roth Herrlinger, all of the Paper Division, and the late Jack Otto, Russell Whitney, Phillip Paul and Marc Shofer of the Paperboard Division—gave unstintingly of their time and energy to this program.

INDUSTRY LEADERS SAW NEED

Their program has been a realistic one, based upon increased production to meet the military requirements and at the same time permit the equitable distribution of all of the other available production to the essential civilian economy. The imposition of any controls, even in wartime, is not always easy to take; however, any realistic consideration of the size of the war burden that later developed will indicate the magnitude of the job that had to be done and it proves the organizing ability of those who have so brilliantly accomplished it.

A great deal of credit also should go to industry leaders who saw the need for this organization and were instrumental in setting it up. Among them were Roy Ferguson, Hugh J. Chisholm, Cola G. Parker and W. J. Alford.

ON OUR COVER—

—is a view that is unusual these days, because it shows a great river of the west with plenty of logs in it. For many months during this war they had not been so plentiful. This is a recent picture indicating the improved conditions on the Willamette River, which is one of the North American continent's great producing areas of the pulp and paper industry.

It is in the location shown in this picture that the early pioneers of the western industry began their operations.

The cameraman is looking across the Willamette River below the falls at Oregon City, Ore. Two pulp and paper mills are located here.

Logs in the foreground, tied on the Oregon City side, belong to Hawley Pulp & Paper Co. Those being towed in on the opposite side are the property of West Linn division of Crown Zellerbach Corp. They are tied up stream or towed through the locks. The building on the palisades is the West Linn Inn, a C-Z property, in which many pulp and paper men throughout U. S. and Canada have spent at least a night or two.

"I DIE EVERY DAY" *(A Guest Editorial)*

By MRS. GLORY PALM

Advertising Manager, Zellerbach Paper Co.

WE were sitting at the breakfast table — just the boy and I—

"Yes, Mom, that's what I said — 'I die every day'."

I stopped eating and stared. Such a funny remark from a fifteen-year-old.

"What do you mean, son?"

"Well, you see it is this way. We have Extended Order during R.O.T.C., and every morning we charge up that big hill to the south of the football field. We rush into battle at the command, but no one ever gets hit, so I decided we out to be more realistic. The next time we got the order to charge, I ran half way up the hill, let out a yell, threw my rifle aside and hit the dust. The captain said it was okay, so I just kept doing it.

"Last Friday we heard we were to have inspection by some of the brass hats from the Presidio. Ross, our captain, said—'Palm, you've been dying every day, so you can die again at inspection tomorrow, and all the number fives can die, too. But remember, guys, you've got your new rifles now; stagger a bit and put them down easy before you fall.'

"We charged up the hill next morning, but everyone forgot to die except me. Ross was mad, but afterwards he laughed and said that I died so dramatically it made up for the rest of the guys."

I swallowed my oatmeal and tried to laugh, but the laugh wouldn't come. I went on with my breakfast, looking at the fifteen-year-old so soon to be a man—and yet today so much the boy. Silently I pledged my whole-hearted support to the War Loan Drive.

UNTIL IT'S OVER EVERYWHERE

ONE of the best known persons in this industry in Canada and the United States is Royal S. Kellogg, silvery-haired secretary of the News Print Service Bureau. Everywhere he is known and admired, but few people know that he has been doing a stirring job in his free time in the war work of his home community of Wilton, Conn., especially in war bond sales.

When Mr. Kellogg leaves the News Print Service Bureau offices in New York his day isn't done—and he is determined it won't be done until the unconditional surrender of the enemy.

His appeal to his fellow citizens in the attractive little Connecticut town expresses so well the goal of private individuals and industry in this war that we take pleasure in reproducing it here:

"The non-military nations of the world are beating the militarists. They are beating because they are free people fighting to remain free. They will not long tolerate either physical or spiritual slavery. Not believing in war as the purpose of life, they were not adequately prepared, when the attack came. Preparation after war began was difficult and costly.

"But time marches with the fighters for a free world, and those who cannot fight gladly supply the tools to those who can. No matter how much we who stay at home may do, it cannot be too much. Our sons, our neighbors, our friends, who are serving on every sea and on every continent, make our best efforts seem slight. It is up to us to back them.

"No one is selling the United States of America short."

The example of Mr. Kellogg, who despite his advanced years, is fighting the war with everything he has on the home front, is an inspiration to all of us.

COMMENTARY ON THE PAPER SHORTAGE

A LADY in New York told us that a coat she had altered was returned to her from one of the well known Fifth Avenue stores virtually swamped in tissue. She counted 92 good-size pieces of tissue in the package.

And over on Broadway every night the shows are still passing out 50-page slick paper programs of which only three or four pages are devoted to the program. The rest are ads that few theatergoers have time to read.

In Britain it is crime to waste paper, punishable by prison or fine. One way to know what's coming in wartime U. S. in the form of rationing and restrictions on individuals and industries is to watch what happens in Britain. Six months to a year later, similar restrictions have been imposed in the United States.

What Will U. S. and British Statesmen Do About Australia-New Zealand Parchment Market?

● The United States parchment paper producers have captured the Australian and New Zealand market from the British parchment paper industry.

The war, of course, made this possible. And, incidentally the parchment paper market in the British Antipodes is quite an important one, in view of the dairy industries there.

In a recent meeting of the British paper merchants of the mother country, held in the historic Holborn restaurant of London (presumably in defiance of buzz bombs and whatever's left of the Luftwaffe).

In a recent issue of World's Paper Trade Review, published in London, a pessimistic member of the paper industry in the mother country, commented unhappily on the loss of the vegetable parchment paper market in the Antipodes.

We presented his comments to one of the officers of a leading American Company in the parchment paper field. The American does not consider the matter is closed and points out that the market might just as easily be lost again by the Americans. He believes the British merchant is too pessimistic.

FOUR PROMINENT GUESTS at the dinner at Chateau Laurier Hotel, Ottawa, on Sept. 12 honoring completion of 50 years in the paper industry for GEORGE C. WINLOW, former General Sales Manager, J. R. Booth, Ltd., and now Director of Sales and Director of The E. B. Eddy Co., Ltd., Hull, Quebec.

Left to right: Mr. WINLOW; G. GORDON GALE, President, The E. B. Eddy Co.; W. GARFIELD WESTON, Member of the British House of Commons, and J. GORDON FLECK, President, J. R. Booth, Ltd. MR. WESTON is a director of both companies.

Mr. WINLOW's new office is just a stone's throw from the one he left, the Booth and Eddy companies being separated by only the narrow Chaudiere Falls in the Ottawa River.

Mr. WINLOW is one of the best known executives in the paper industry on the continent. Starting as a young man with the old Canada Paper Co. of Montreal, he traveled hundreds of thousands of miles, while acquiring intimate knowledge of Canadian, U. S. and British markets.

American Comment

● The American says:

"The Australian market will, without a doubt, shape up entirely differently after the war and our large shipments at present no doubt are due solely to the war.

"Many world wide policies will have to be known before anyone can do anything but pure guessing and we have had too much postwar planning (dreaming) by many writers."

A great deal will depend, as the American points out, on the postwar trade agreements of the United States government.

Following is what the British merchant, identified as H. E. Poole, had to say:

"Vegetable parchment, for many years, was probably the most important speciality paper shipped from this country to Australia and New Zealand. The volume was in the region of 2,000 tons per annum, and the value today roughly 200,000 pounds ($1,000,000). The pulp used in manufacture was always imported —but so also was the raw material for every one of our great industries, cotton, rayon, wool, the heavy industries, tin, copper — all come from overseas and were paid for (as in the case of paper) with manufactured articles, the export of which made us the wold-wide industrial nation that we were before the war. Thus it is no reproach on the industry to call it 'exotic' or to refer doubtfully to the double handling of materials involved in bringing in raw materials, and sending out finished products.

"It is also particularly fitting that British parchment should be used for packing Australian and New Zealand butter, because this country is the great buyer of Dominion produce; **and moreover has to buy back the parchment in the form of wrappers,** the cost of which is included in the price of the butter. If this country thus buys back only 1,500 tons of parchment at cost, she is paying 45,000 pounds ($225,000) a year more for her butter if American parchment is used instead of British, since American is roughly 30 pounds dearer. It is obvious, therefore, that Great Britain has a two-way interest in this matter—firstly she would have the benefit of the export trade she so badly needs; and secondly she would be saved a considerable sum in the cost of the produce she buys.

A British Proposal

● "Now, why are we not shipping parchment to that market today? Not only has this country a general Lease-Lend arrangement with America, but so also has Australia; **and both countries have absolute discretion over what goods they are agreeable to have brought within the ambit of that most beneficient measure.** Should vegetable parchment continue in that category, or is there any honourable way in which it can be removed from the list if public interest demands a change? As a member of an important export association which has investigated the matter, I gather that goods included in Lease-Lend come up for revision at certain stated periods, and that the removal of a line can be smoothly accomplished, simply by not including it when the revision takes place. There is, therefore, no international difficulty of 'break' or 'breach' involved, because Australia is ready and willing to buy.

"As is well known in the trade, parchment is a seasonal line, and the butter industry, as at present conducted, depends absolutely on wrapping material being available. Without wrappers the butter cannot be sent to this country for our use, or to the devastated areas of Europe when the war ends. So, already the 1944 supplies are bought and to a great extent delivered. Furthermore, 1945 contracts due to be placed. Make no mistake! The export trade is not a matter of ringing up a mill and ordering 50 tons 'for delivery the week after next.' It is a matter of negotiation twelve months before the paper is required. Is this country going to wait until 1946 before it can get even a chance to compete with the American product for these markets, which, by sentiment and practical politics, have always been ours?

"In brief, it is up to us! If our export industry is to be saved, it is our government which must act by granting permission to our mills to supply — if needs be at the expense of the home trade. And how does any government act? By seeking the advice of its responsible officials. And who are they? The Board of Trade, and the Ministry of Supply! And who is the Ministry of Supply so far as our industry is concerned? Well, I read a remarkably good speech of his in your last week's issue, Mr. Editor. I wish I could read that cry from Macedonia (beg pardon—I mean Australia) had been answered and that parchment was again on the move."

That last sentence indicates that in Britain, too, the statesmen are concerned over the starving people of occupied countries in Europe — in this case, apparently Greece or Macedonia. Which is to be commended — but also the British paper merchant wants some concern shown about his plight.

What about the statesmen in Washington, D. C., and Ottawa, and their concern over the North American pulp and paper industry?

INNOVATIONS AT SCOTT PAPER CO.

New Facilities for Employes are Introduced... Youth Is Served in This Company's Promotions...

HERE IS THE BIG SCOTT PAPER COMPANY PLANT on the Delaware River at Chester, Pa., a few miles southwest of Philadelphia. Taken before the war, this air view has censorship approval. There have been a couple of interesting changes since it was taken. Another floor has been added to the upper left-hand corner of the building of the plant for a modern cafeteria. The barren ground in the upper left-hand corner is now taken over by the Sun Shipbuilding Corp., operated by the well known Pew family. Its score or so of shipways are built right up close to the Scott plant and they extend for a considerable distance off to the upper left of this picture.
Officers of the Scott Paper Company and the home office executives of the affiliated companies operating mills at Brunswick, Ga.; Glen Falls, N. Y.; Empire, Ore.; Anacortes, Wash.; Marinette, Wis.; Charleston, N. C., and Murray Bay, Que., have their offices on the top floor of the building on the river side and paralleling the river. A filter plant and fuel tanks are in the foreground. A coal conversion plant was built in what is shown in this picture as an open area in the lower right hand area of the mill property.

THE executives who today are responsible for the destinies of the great Scott Paper Co. are keenly aware of the importance of a continuing raw material supply in future years.

Like many other alert operators in the industry, they are scrutinizing closely the possible future sources of timber on this continent. Therefore, it was quite natural that when the big modern tissue and towel mill at Chester, Pa., was visited by the editor of Pacific PULP & PAPER INDUSTRY, the status of timber and pulp supply in different regions of the United States and Canada was the most interesting subject of speculative discussion.

Scott Paper Co. executives prepared wisely for the future when, some years ago, they set up widely diversified suorces of wood supply. They have pulp mills of their own in Canada, in the east, midwest and far west of the United States and they share with Mead Corp. in production of a southern U. S. mill. Besides this, Scott always has bought some market pulp, including some from Sweden, and there is no doubt this will continue to some extent when Swedish pulp again becomes available.

The parent mill, whence come the world famous tissue and towel products bearing the Waldorf and Scott labels, eats up every day some 450 to 500 tons of pulp.

About thirty per cent of this supply comes from the Coos Bay Pulp Corp., sulphite mills at Empire, Ore., and Anacortes, Wash. The latter mill, which produces a slightly larger share of about 155 tons on the average day, was able to reopen a year ago, after a year's forced shutdown by the War Production Board, whose present key members only recently told this magazine the shut-down was "a great mistake."

The WPB had hoped, in the shutdown of three western mills including Anacortes, to ease a labor crisis on the Pacific coast and spread out the wood supply among "most essential" industries. It was not recognized then, as today, that few products of the forest industries were more important to the war effort and civilian morale than tissue and towel.

It was a surprise to that former WPB regime that no one else showed interest in going for wood in

the snow region of Washington state, as the energetic Scott subsidiary firm had been doing. But that phase of experimentation in the government is happily over.

Another important source of pulp for Chester is the sulphate mill in Brunswick, Georgia. This is shared with Mead Corp. Here the pine and gum of the South is manufactured into bleached sulphate pulp and from 100 to 110 tons a day on the average heads north to Chester.

Scott's two Canadian subsidiaries, the Delaware Pulp Co., at Murray Bay, Que., and the Nova Scotia Co., at Charleston, N.S., produce mechanical pulp. Production has been hampered only partially by low water at Charleston.

In addition, the Scott subsidiary, Marinette Paper Co., with plants at Marinette, Wis., and Glens Falls, N. Y., makes several types of paper, and the operation, at Marinette, Wis., is an integrated plant. This latter, includes a sulphite mill, and is the home of the K ration tissue pack for the military forces. These mills also produce a new "Scottie" line of facial tissue.

Products Unlabeled

● As in the case of other tissue mills, much of Scott's production goes to the armed forces without any label whatever. With the exception of the "K" ration package, there is no mark of identification to show that it is their product, but, probably most soldiers, sailors and marines know much of that production comes from Scott. Of course, other tissue mills, too, are similarly supplying this highly essential war material.

There are nine machines at Chester—eight 175 inch Fourdriniers and one 188 inch. Eight of them are on tissue and one on towel. One of the "sights to see" at this mill is a big Beloit whose official speed is not for publication except to say that it is somewhere in the neighborhood of 1600 feet per minute.

Another interesting machine is a breaker that prepares 5,000 pounds of pulp in approximately eighteen minutes.

Technical and engineering work for all the Scott mills is principally carried on at Chester where large staffs of employes and all the latest equipment for the purpose are devoted to the purpose of keeping Scott up to date in everything.

Remarkable wartime developments in high wet and dry strength tissue and in the development also of some remarkable facial tissue products—all very recent and still not for public consumption — are matters in which Scott's technicians are up to the minute and ready to participate in springing what may be some interesting postwar surprises for the tissue market.

Employe Relations

● Employ relations of Scott Paper Co. are a most interesting study for executives of the pulp and paper industry. This company has not shown hesitation in trying something new to make working conditions more pleasant or to enliven the interest of employes in the company's welfare and its plans and policies.

The company has seized every opportunity to make the employes fully conscious of the fact that their work is an "essential war activity." A brief visit at this Chester mill also revealed that Scott employes have these advantages:

1. Job security.
2. Good wages.
3. High safety standards.
4. A fine cafeteria.
5. Recreation rooms.
6. Music while they work.
7. Low-cost insurance.
8. Sanitary washrooms.
9. Clean, cheery surroundings.
10. Social clubs, parties, etc.

One of the recent innovations at Chester, instigated by Thomas B. McCabe, the president of the company, is the "Forum Series" meetings. These are held in the comparatively new recreation room and they give the supervisors and other key employes an opportunity to obtain a more complete picture of the business.

Mr. McCabe himself and others of the company have been openly frank at these meetings in discussing their problems and it is felt that this has inspired loyalty and fullest cooperation of employes. Other subjects are discussed, too, as for example, a talk given this year at the Forum by the publisher of a national business magazine on "What Makes America Great."

A fine new cafeteria on an upper, airy floor of the plant was shown to this visitor, also.

Fine Safety Record

● The list above, it will be noted,

Left to right: THOMAS B. McCABE, President of Scott Paper Co.; J. L. OBER, Vice President in Charge of Plant Operations, and President of Coos Bay Pulp Corp. and other subsidiaries (he directed design and construction of the Brunswick, Ga., sulphate mill), and WILLIAM T. WEBSTER, who moved from Tacoma, Wash., to Brunswick to be Resident Manager of the sulphate mill jointly operated there by Scott and Mead Corp.

YOUTH IS SERVED IN SCOTT PAPER CO. If you don't believe it, just glance at the above gallery. Left to right: PAUL C. BALDWIN, who at 29 became Mill Superintendent at Chester, Pa.; JOHN McKIRDY, former Anacortes, Wash., Mill Manager and now Washington, D. C. representative for the company, and MALCOLM PINEO, ex-Coos Bay, Ore., Technical Director and now Pulp Preparation Supervisor at Chester.

mentioned high safety standards. Scott has one of the country's lowest accident records for mills in this industry.

It may be of interest particularly to some Weyerhaeuser and Crown Zellerbach men, who are aready familiar with this new development, that the "Three-Dimension Seeing" system of painting machinery and entire rooms in plants has been adopted on a big scale at Chester. These bright plastic shades of green and yellow and red, developed on a scientific basis by E. I. du Pont de Nemours & Co., Finishes Division, are used throughout the Scott mill. Dangerous parts of machinery are painted red and other colors are used to brighten up dark areas and to make a workroom more pleasing or restful to the eyes of employes.

Also mentioned in the above list was "Music while they work." This music is brought into the Chester mill from Philadelphia by telephone wire for a prescribed period every hour. It plays in those parts of the mill where there are repetitive jobs, such as in the finishing rooms and also in the pulp preparation and pulp handling departments. There is both popular and classical music. At certain seasons of the year, special programs such as Christmas carols, are provided.

With more than 450 employes in the military service, about 30 per cent of the jobs in the mill are filled by women. Most of these are young girls in the converting division and it has been amply testified that the music helps them in keeping up high efficiency. There are "fatigue periods" around 10:30 a.m. and 3 p.m. and at corresponding times on other shifts. Bright, tuneful music offsets these periods of lag.

The Sun Shipbuilding Co., with numerous ways, shown in a picture of the Scott mill with this article, now abuts on the mill property. Like all busy war centers, the town of Chester has undergone a wartime metamorphosis. But, nevertheless, this area of the Delaware Valley is still a fine part of the country and many of the employes of Scott have attractive small homes of their own. Most of the supervisors and superintendents live in the suburbs of Chester, with an acre of ground or so as their own.

One of the wartime changes at the mill was the installation of a coal-burning unit at a cost of half a million dollars. Now the company is able to use oil or coal interchangeably, in protection against shortages in either fuel supply.

Personnel

In the personnel of Scott Co., several important changes were made this past year. J. L. Ober was advanced to vice president, succeeding William S. Campbell, who was forced to retire because of bad health, and Forrest W. Brainerd, a leading member of TAPPI, was elected vice president in the subsidiary companies. Mr. Plowman was appointed sales manager. He and William R. Scott, 3rd, secretary-treasurer, were elected new directors.

Mr. Ober, whose duties include responsibility for pulp supply, also succeeded Mr. Campbell as president of Coos Bay Pulp Corp. and vice president of other subsidiaries. Mr. Ober came to Scott from Stone & Webster Engineering Corp., where he was assistant to the president and had often had contact with the Chester, Pa., industry, since Stone & Webster frequently was called in on engineering projects.

Mr. Ober's experience in the Scott organization since joining the company in 1934 included periods in sales promotion and personnel departments and, in 1936, as vice president and general manager of the sulphate mill at Brunswick, Ga., during its construction and initial operation.

In 1940 he was made director of all company purchases and in December, 1942, became acting vice president in charge of plant operations. This position became permanent a year ago. His assistant is Harry Dunning.

Forrest Brainerd, like Mr. Ober, is well known in the far western and other subsidiaries of the company, having often visited them, and he is a leading active member of TAPPI. His career with Scott began in 1931 when he joined the paper mill as a third hand. He soon demonstrated his ability in technical lines and at the end of his first year was made laboratory department chemist. He was sent to the Paper Institute at Appleton, Wis., for training the next year and

when he returned, he quickly rose to staff technical director in 1942. Since then, he served a spell in Washington, D. C., as consultant on sanitary paper products for the Pulp and Paper Division of the WPB.

Another outstanding young man in the organization who is well known in the west is C. Wylie Smith, also a vice president of Coos Bay Pulp Corp., who makes his home at Empire, Ore., and who directs operations of the two western mills, dividing his time between them. He came to the company after training in the far western industry, including a period with Puget Sound Pulp & Timber Co., and his activity in developing the timber resources of the company in the west is recognized as outstanding.

Youth is served well in the Scott Co. as witness the fact that the superintendent of the Chester mill is a man who was only 29 years old when we met him earlier this year. Possibly Paul C. Baldwin, the mill superintendent, is now past his 30th birthday, but we won't split straws over that—he's still mighty young to be running such a big mill. He now has held down the job about a year and there is no question in any one's mind at Chester about his ability.

Baldwin is Superintendent

● Mr. Baldwin is one of the modern species of mill superintendents who are technically-trained and progressive-minded. He was born in nearby Wilmington, Del., lived in Syracuse where he graduated from Syracuse University as a chemical engineer, and later studied at the Institute of Paper Chemistry at Appleton.

In the summer of 1938, Mr. Baldwin, then in his 20's, was employed at one of the big western mills at Everett, Wash. He did sulphur balance work there.

Two former westerners who hold important positions in Chester's setup are John McKirdy, who has trained himself to be the Washington, D. C., expert and advisor for the company. He knows his way around with WPB, OPA, and like bodies. Mr. McKirdy was resident manager at the Anacortes, Wash., mill until two months before that mill shut down in November, 1942. He previously had been assistant plant manager at Chester.

Malcolm Pineo, another young man in the organization, who is now in charge of the pulp preparation department, was a former technical director at the Coos Bay, Ore., mill.

In the eastern organization, holding down important posts, are R. C. Mateer, vice president, who directs the Wisconsin mill; William M. Carney, controller, C. Edwin Ireland, assistant treasurer, John B. Hay, assistant treasurer, John McNichol, superintendent of finishing, John Inch, traffic manager, and H. C. Pardee, advertising manager.

A former well known figure in the Washington state industry, when he was superintendent at the St. Regis kraft pulp mill in Tacoma, who is now with Scott is William Webster, resident manager at the Brunswick, Ga., mill. Instead of making sulphate pulp from western hemlock and cedar, he is using southern pine and the short-fiber gum that grows in the Georgia swamps. They are down into second growth pine of about four inches minimum diameter in that country. And some of the wood for this mill is now being cut by war prisoners, it being one of the first to use them.

In retrospect, recalling this visit at Chester, the outstanding point about the Scott organization seemed to be the fine opportunities given by that industry to promising and capable young men.

Anacortes Mill Resumes After 20-Day Shutdown

● The Anacortes, Wash., Division of Coos Bay Pulp Corp., Scott Paper Co. pulp producing subsidiary, resumed operations Friday, Sept. 15, after being shut down since August 27 for boiler room and other repairs.

It is planned to operate the mill for the balance of the year without further interruption except for about two days at Christmas time, according to C. Wylie Smith, vice president and manager of Coos Bay Pulp Corp.

Crews got in their vacations during the shutdown. Extensive repairs also were made at Morrison Lumber Co., which makes the chips for the Anacortes mill.

President McCabe of Scott Co. Lauds Western Mills for Saving Industry in Crisis

● Addressing an unusual gathering of business and industry executives drawn from all parts of the Pacific Coast, in Seattle, Oct. 5, President Thomas B. McCabe of Scott Paper Co., rated highly the postwar industrial opportunities in that section of the continent. He said that his company, now operating two of the smaller west coast sulphite pulp mills, hopes to become "a greater factor" in the western industrial picture after the war.

The entire day after his talk was spent by Mr. McCabe in inspecting the Anacortes, Wash., sulphite mill, operated as a subsidiary by Scott.

The gathering of sales, advertising and other experts from three states to hear Mr. McCabe was a high tribute both to him personally and, in reflection, upon the pulp and paper industry which he represents. The occasion was a "pep" meeting of Committee for Economic Development groups of the west. This Committee is trying to do a scientific planning job in encouraging and helping new and old industries to keep up a high employment after the war. Mr. McCabe, an outstanding leader in CED, was selected to make this western inspirational and guidance talk.

He chose as an example of an industry which made good, despite pessimistic predictions and handicaps, the sulphite industry of the west. He recalled the days when it was believed superior sulphite pulp could not be made from western hemlock.

"I do not know how the paper industry of the country could have come through this war without your western sulphite industry," he declared.

Mr. McCabe said sales geniuses rather than production men will be key men after the war. Sales "vision" will be of outstanding importance, he said.

He revealed that Scott Paper Co. "has made a postwar planning committee out of its sales force. Its 12 sales divisions were given six subjects to work on. Each subject was given to an eastern and western division and "the competition was terrific." They were told to get any consultants they needed. The result was that Scott has been able to draw up, from their ideas, a "master postwar plan."

At a table of honor, facing the speaker, were J. P. Weyerhaeuser, Jr., executive vice president, and Minot Davis, timber executive, of Weyerhaeuser Timber Co.; Leo S. Burdon, general manager, and C. E. Ridgeway, Soundview Pulp Co., and J. W. Bagwill, Northwest mills labor relations manager, Rayonier Incorporated. These men were introduced to the audience of about 500 executives.

Others present included C. Wylie Smith, vice president and general manager of Coos Bay Pulp Corp., Scott's western subsidiary; Herman L. Hansen, Corwin Knapp and G. P. Tostevin, of Soundview Pulp Co., and Jerry Alcorn, Orville Fox and H. Huebener of the Everett, Wash., mill, Pulp Div., Weyerhaeuser Timber Co.

Mr. McCabe warmly praised Mr. Smith for his work in behalf of Scott company in the west.

"Some have the idea business will guarantee jobs to all," said Mr. McCabe. "We can't do that but we intend to mobilize all of America's ingenuity and enthusiasm to reach that happy goal."

Mr. McCabe was in Seattle October 3-5. Subject of the talk he has been making on his tour, addressing regional CED groups, is "The Postwar Challenge to Our Business."

He addressed a large and enthusiastic audience at the Olympic Hotel. He spent all day October 6 at the Anacortes, Wash., pulp mill, Scott subsidiary.

Mr. McCabe is also a member of the Advisory Council of the Department of Commerce, executive assistant to E. R. Stettinius, Advisory Commission to the Council of National Defense; deputy director, division of priorities, War Production Board; deputy Lend-Lease administrator and member of the U. S. Commission of Inter-American Development.

Five-Point Paper Industry Inquiry Planned by Congressional Committee

● An inquiry to ascertain whether restrictions on use of newsprint can be eased after the end of the war in Europe has been promised by Rep. Lyle H. Boren, chairman of the House Committee on Newsprint and Brand Names in Washington, D. C.

His announcement followed a conference with Rep. Clarence J. Brown, at which Mr. Brown suggested five points of inquiry which he thought should be pursued.

"Printers, pressmen, linotype operators, editors, reporters, advertisers and owners of printing and publishing establishments are entitled to as much consideration in the transition from war to peace as employes and employers in any other industry," Mr. Brown said.

Other points of inquiry, he said, would be:

1. The extent of the War Production Board's control over paper for government printing and its plans for abandoning many federal wartime publications;

2. Whether the Office of War Information plans discontinuance of its use of printing paper after the European war with special attention to the "wisdom" of continuing "Victory," a publication going to Latin-America;

3. The WPB's program for pulpwood production during the coming cutting season and the feasibility of using German prisoners of war as workers, and,

4. Whether some paper mills are reluctant to return to a free market in paper.

The committee has prepared a report for submission to Congress analyzing paper supplies and prospective deliveries and suggesting there is nothing in the record to indicate a need for further curtailment of print paper during this year.

Belief was expressed that defeat of Germany very soon would ease the paper shortage and while the improvement was not expected to be immediately reflected in larger inventories it carries the prospect of avoiding curtailments.

Three Important Changes in WPB Posts; Relaxation of Controls Looms as Issue

● Three important changes have been made this past month in the Paper and Paperboard Divisions of the Forest Products Bureau, of the U. S. War Production Board.

Walter H. Wilcox, on leave of absence as assistant to the president of S. D. Warren Co. of Boston, succeeded Rex W. Hovey as director of the Paper Division on Sept. 16. Mr. Hovey, completing a year of exceptional service to his country during an important reorganization of war agencies and a most critical pulpwood and pulp production period, has returned to his position as vice president in charge of manufacturing for Oxford Paper Co., with headquarters in New York.

Mr. Wilcox was actively with S. D. Warren from 1930 to August 14, 1944, when he became deputy director of the Fine Paper Branch of the Paper Division. Mr. Hovey turns a job over to him which has been unusually well organized and smooth running, and which—most important of all—has developed a high class of cooperative effort between the industry and the government. Mr. Hovey, in his key position, saw the industry through the greatest crisis of its history.

A second important change in the Paper Division is the appointment of Curtis Hutchins, a young honorably discharged naval officer who had several years experience in wood production in Maine, to head the Pulpwood Branch of the Paper Division. James L. Madden, vice president of Hollingsworth & Whitney Co., Boston, steps out of this job after a crucial year of service.

The third important WPB change affecting this industry is appointment of Arnold B. Huyssoon to succeed Russell Whitney as director of the Paperboard Division as of October 1.

Mr. Huyssoon, who had been assistant director, is in private life with Continental Paper Co., Ridgefield Park, N. J. Mr. Whitney, on leave from Hinde & Dauch Paper Co., Sandusky, Ohio, had served as director for the past three months, having stepped into that post when Jack Otto of Alton Box Board Co., Alton, Ill., died suddenly last July 4.

The important question now coming before the Forest Products Bureau, the Paper and Paperboard Divisions, is how rapidly in what ways, to relax pulp, paper and paperboard controls. The Box Board, Folding Box and Set-up Box Industry Advisory Committee, at its recent meeting, came out against immediate relaxation of paperboard controls because government requirements for this product are actually higher in the fourth quarter than in the third quarter of this year. However, it seemed to be the prevailing view in most of these advisory bodies that all limitation orders should be relaxed as soon as all government requirements can be met and a sufficient supply is indicated.

How much these advisory committees are going to have to say about the matter remains to be seen.

FORRESTAL SAYS:

"Lumber and pulpwood make the American Navy possible," says Secretary of the Navy James V. Forrestal. "In addition to steel and other metals used in our ships and aircraft, lumber and pulpwood products are so necessary in the construction, maintenance and servicing of our sea and air fleets that without them our building program would falter and our hitting power would be blunted.

"Whether we continue to get the lumber and pulpwood products the Navy needs, depends in great measure upon the work of the men in the forest products industry. With their help we can speed the defeat of America's enemies."

Michels of Great Lakes Studies Pulp Drying Advances

● A recent visit by C. A. Michels, manager of the Great Lakes Paper Co., Fort William, Ontario, and a former resident of Oregon City, Ore., in the west, was to study pulp drying machinery in the coast mills, which he states to be far in advance of eastern mills in this respect. On this aspect of the business he conferred with C. W. Morden, of Morden Machines Co., and Leo. S. Burdon, also formerly of Oregon City, but now general manager of Soundview Pulp Co., Everett, Wash.

Mr. Michels, also was concerned about the bettle trouble the industry is having in the Oregon woods. In his report of Canada, he said, "we have the bettle but we call them saw flies and they are working on the green timber. It is serious."

He forecasts that Pacific Coast mills will move more and more into the U. S. domestic newsprint market, within freight rate limits.

His mill at Fort William now operates a 304-inch newsprint machine at 1200 feet per minute, producing 200 tons in 24 hours.

Sweden May Ship 850,000 Tons of Pulp, 100,000 Tons of Newsprint to U. S. in 1945

● As the result of recent inquiries made concerning the U. S. state department's negotiations with Sweden, that government department has announced that Swedish pulp and newsprint will be admitted and sold in the United States in conformity with OPA prices. No statements were made, however, concerning the important subject of quantities but it was reported that the pulp stockpile is between 600,000 and 750,000 tons.

The recent leading article published in Pacific PULP & PAPER INDUSTRY revealing that Swedish pulp exports to Germany were curtailed by agreement with the U. S. State Department and discussing the effect this may have on the quantity of Swedish pulp available for the United States was brought to the attention of executives of the Associated Press, which thereupon ordered its Stockholm news bureau to make inquiries in that country.

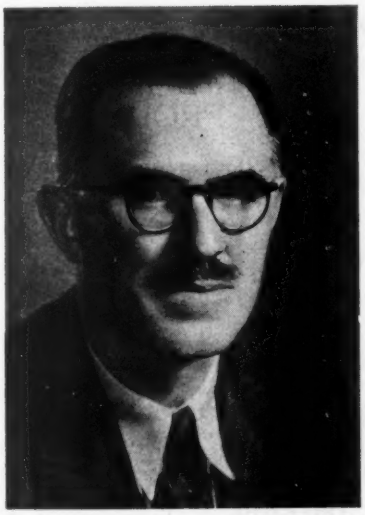
A reply has been received to the effect that the Swedish industry is prepared to ship both pulp and newsprint to the United States as soon as the war with Germany ends.

It said the United States might be provided with 850,000 tons of pulp, sulphite and kraft, and 100,000 tons of newsprint in one year. (Sweden shipped 1,084,000 tons of pulp to U. S. in 1937, 830,087 tons in 1938 and 957,879 in 1939. Stocks of pulp now held in Sweden total 600,000 tons, say Swedish agents.)

The AP's Stockholm office reported there was some concern felt among Swedish industry leaders concerning the postwar United States official attitude toward price-fixing cartels which have controlled export prices of various grades of paper, notably kraft wrapping paper. It is considered likely that either a Republican or Democratic administration in Washington will take a strong stand against cartels in world trade, which have in the past been favored by some European countries.

The AP report also said that some Swedish industrialists feared U. S. purchasers will favor Norwegian pulp because Norway was an ally in the war.

Ed Wood Goes to Mobile as Assistant Mill Manager; Hazelquist Will Succeed Him in Longview Post



ED P. WOOD, who resigned as Technical Director, Longview, Wash., Mill, Pulp Div., Weyerhaeuser Timber Co., to become Assistant Mill Manager under D. E. COUSINS, Chickasaw Mills, Hollingsworth & Whitney Co., Mobile, Alabama.

● Ed P. Wood has resigned as technical director of the Longview, Wash., mill, Pulp Div., Weyerhaeuser Timber Co., effective Nov. 1, to accept the position of assistant manager of the Chickasaw Mills of Hollingsworth & Whitney Co., in Mobile, Ala.

Svarre E. Hazelquist, who has been Mr. Wood's assistant at Longview, will succeed to the position of technical director in that mill.

Mr. Wood will serve under D. E. Cousins, who is the mill manager at Mobile. This mill makes bleached, semi-bleached and unbleached sulphate pulp and produces tag stock and other kraft papers on a fourdrinier and cylinder machine. Headquarters of Hollingsworth & Whitney Co. are in Boston. The company has sulphite pulp and paper mills in Maine as well as a groundwood mill.

Mr. Cousins formerly managed the old Cascade Mill at Tacoma, Wash.

R. B. Wolf, manager of the Pulp Division, and W. N. Kelly, Longview mill manager, of the Weyerhaeuser Timber Co., expressed regret over breaking of 13 years' association with Mr. Wood but at the same time said they were happy that this new opportunity had come to him.

Mr. Wood's wide experience included three years in a mill in India and previous experience in sulphate mills in this country. Mr. Hazelquist, a native of Norway, spent six months in Australia and both he and Mr. Wood first joined the Weyerhaeuser organization in the fall of 1931.

Born in Mechanicsville, N. Y., where his father was a pulp and papermaker, Mr. Wood was 47 years old on October 24 of this year. He was graduated from chemical engineering at the University of North Carolina and worked summer vacations for eight years at the diversified Champion mill in Canton, N. C., becoming assistant chemist in 1919. In 1922 he went to the Parsons sulphite mill in West Virginia as chief chemist.

● He and Mrs. Wood, a West Virginia girl, were married in 1922, just before they left for Madras, India, where Mr. Wood spent three years as general superintendent of Carnatic Paper Mills, Ltd., in Rajahmundry, nearly 400 miles north of the city of Madras. This mill made paper from bamboo by the soda process.

In July, 1925, the Woods returned to U. S., as he took over the position of chief chemist at Tonawanda Paper Co., North Tonawanda, N. Y., a soda mill at that time making paper for Liberty magazine. They came west in August, 1926, when Mr. Wood joined Oregon Pulp & Paper Co., Salem, Ore., as chief chemist, later serving as technical superintendent. From 1929-1931 he was chief chemist of the Kraft Pulp Div., St. Regis Paper Co., Tacoma, Wash., and joined Weyerhaeuser in Longview as chief chemist in September, 1931.

SVARRE E. HAZELQUIST, who becomes Technical Director, Longview, Wash., mill of Pulp Div., Weyerhaeuser Timber Co., on Nov. 1.

Mr. Wood was elected chairman of the Pacific Section of TAPPI for the 1942-1943 term after serving a year as vice chairman in charge of the organization's programs.

Born in Norway in 1905, Mr. Hazelquist was brought to the state of Washington by his parents in that same year. He was graduated in chemical engineering from the University of Washington and worked at the Shelton, Wash., mill and Olympic Forest Products during 1931 in the technical department. He joined Weyerhaeuser in October, 1931.

His years' of service and advancement with that company were broken between September, 1939, and March, 1940, when he had a leave of absence to work for Australian paper manufacturers. His primary interest was a bleach plant of a kraft mill near Melbourne, where they were cooking eucalyptus for pulp. During that stay abroad, he visited several Australian mills.

Score Card on Hydraulic Barking

We have received frequent inquiries on the progress of hydraulic barking, newest and perhaps most important wood conservation development in years. Readers suggested we publish this list of hydraulic barkers now installed or planned:

LOG BARKERS IN THE WEST

Began Operation	TYPE	MILL	CITY	PULP PRODUCT
August 7, 1942	Log turned by indexing chain, nozzle traveling under log	Pulp Div., Weyerhaeuser Timber Co.	Everett, Wash.	Bleached sulphite
(Jan. 25, 1943	Started whole log chipper	Pulp Div., Weyerhaeuser Timber Co.	Everett, Wash.	Bleached sulphite)
Jan. 13, 1944	*Lathe principle, nozzle carriage overhead	Crown Zellerbach Corp.	Port Townsend, Wn.	Kraft
Aug. 14, 1944	Lathe principle, nozzle carriage overhead	Rayonier Incorporated	Port Angeles, Wash.	Bleached sulphite
Sept. 26, 1944	Lathe principle, nozzle carriage overhead	Rayonier Incorporated	Hoquiam, Wash.	Bleached sulphite

*Installed on a semi-commercial basis and operated at about one-half final capacity.

LOG BARKERS APPROVED BY WAR PRODUCTION BOARD

Probable Date of Operation	TYPE	MILL	CITY	PULP PRODUCT
January, 1945	Lathe principle, nozzle carriage overhead	Hawley Pulp and Paper Co.	Oregon City, Ore.	Groundwood and Unbleached sulphite
June, 1945	Adjustable ring type, nozzles in ring segments	Soundview Pulp Co.	Everett, Wash.	Bleached sulphite
June, 1945	Log turned by indexing chain, nozzle traveling under log, and whole log chipper	Pulp Div., Weyerhaeuser Timber Co.	Longview, Wash.	Bleached sulphite

Powell River Co., British Columbia Pulp and Paper Co., Puget Sound Pulp & Timber Co., Fir-Tex Board Co., Oregon Pulp and Paper Co., Columbia River Paper Mills, Spaulding Pulp and Paper Co. and several Crown Zellerbach Mills also contemplate hydraulic barking.

HYDRAULIC SLAB BARKERS

Date Began Operation	TYPE	MILL	CITY	PULP PRODUCT
July 1, 1944	Feed rolls with three nozzles above slab	Puget Sound Pulp and Timber Co.	Bellingham, Wash.	Unbleached sulphite
Sept. 19,1944	Feed rolls with three nozzles above slab	Pulp Div., Weyerhaeuser Timber Co.	Everett, Wash.	Bleached sulphite
Oct. 1, 1944	(Feed chains with pendlum nozzle)	Crown Zellerbach Corp.	Port Townsend, Wn.	Kraft

A small ring type of hydraulic barker for cordwood, made by Allis Chalmers, has been installed in a number of Maine, Pennsylvania and other eastern mills in the past year.

Hydraulic Slab Barking--Another Important New Development in Pacific Coast Mills

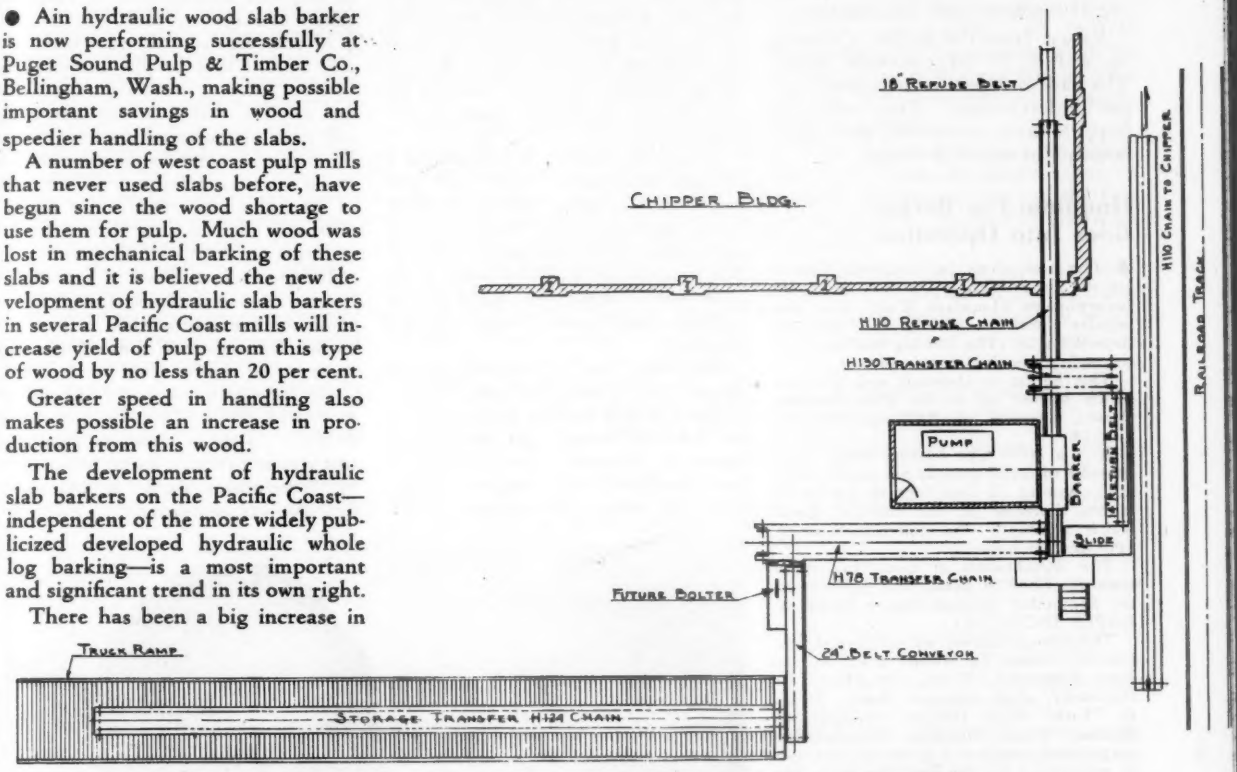
● Ain hydraulic wood slab barker is now performing successfully at Puget Sound Pulp & Timber Co., Bellingham, Wash., making possible important savings in wood and speedier handling of the slabs.

A number of west coast pulp mills that never used slabs before, have begun since the wood shortage to use them for pulp. Much wood was lost in mechanical barking of these slabs and it is believed the new development of hydraulic slab barkers in several Pacific Coast mills will increase yield of pulp from this type of wood by no less than 20 per cent.

Greater speed in handling also makes possible an increase in production from this wood.

The development of hydraulic slab barkers on the Pacific Coast—independent of the more widely publicized developed hydraulic whole log barking—is a most important and significant trend in its own right.

There has been a big increase in the use of slabs and small wood on the west coast, much of it former waste from saw mills. With the trend toward less big wood, for which the west had long been famous, the use of small wood is expected to steadily increase. The hydraulic slab barkers, therefore, take on great importance for the future.



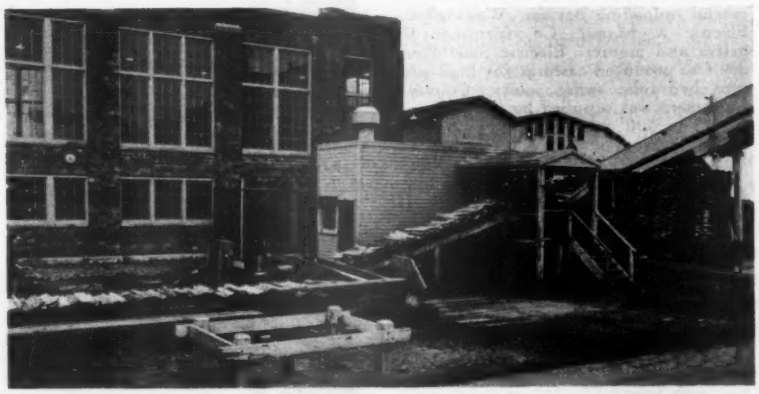
HYDRAULIC SLAB BARKER LAYOUT AT PUGET SOUND PULP & TIMBER CO.

Developed by the Mill

● The Bellingham hydraulic slab barker was developed by Puget Sound Pulp & Timber Co.'s operating and engineering department. It was built in the company's shop. It had been in experimental operation for some time.

The barker is designed to handle slabs 12" wide, 2 ft. long and longer. The feeding speed can be varied between 1 to 3 ft. per second. The capacity of the barker will naturally depend on the size slabs fed to the machine, but an average of 5 cords per hour can be considered as a reasonable capacity.

The barker consists of a series of bed feed rolls conveying the slabs through the barker. Two top rolls are mounted in a swing frame acting as hold down rolls and also assisting the feed of slabs through barker.



THE HYDRAULIC WOOD SLAB BARKER developed by PUGET SOUND PULP & TIMBER CO. in Bellingham, Wash., is shown here. The barking machine, described in the accompanying article, is in the housing to the left of the railroad car loaded with slabs. Barked slabs are coming from it on the left of barker shed. This is a most important development in the far west, where sawmill slabs are coming into increasing use in mills. The hydraulic barker makes this use economically favorable.

The machine is provided with 3 water nozzles 3/16" by ⅜". The nozzles are located in a straight line, crosswise to the slabs and are equally

spaced. The tips of the nozzles are approximately 17" away from the face of table feed rolls.

The power unit consists of a 400 H.P. motor 3550 R.P.M. driving a Worthington 6 stage pump delivering 450 gals. at 1100 lbs. pressure.

Refuse from the barker is carried by a No. H-104 conveyor chain. The bark is deposited in a steel hopper under barker. This collecting hopper has a perforated steel plate bottom for water drainage.

Hoquiam Log Barker Goes Into Operation

● The now whole log hydraulic barker for the Grays Harbor Division, Rayonier Incorporated, Hoquiam, Wash., went into regular operation with a full crew on September 26. The first log had been put through three days previously.

This barker is identical with the one which started up at the Port Angeles, Wash., Division of Rayonier, on August 14.

It is a lathe type barker, using water pressure of 1,100 pounds per square inch, and cleaning 22 foot logs of up to 50 inches diameter at the rate of speed which eventually was expected to reach 100 logs per hour.

The installments at these two mills were described in detail with pictures in the September issue of Pacific PULP & PAPER INDUSTRY.

This type of barker was developed first for the Crown Zellerbach kraft mill at Port Townsend, Wash., by Harry E. Bukowsky, plant engineer there. J. G. E. "Jack" Ellis, resident engineer of Shelton, Wash., Division, Rayonier Incorporated, made a number of changes in adapting it for the Rayonier mills. He directed fabrication at the Shelton mill.

Sumner Iron Works supplied loader castings, kickers, log hauls, transfers and special unloading devices. Westinghouse Electric & Manuf. Co. furnished the drives and motors. Electric Steel Foundry Co. produced castings for high pressure hydraulic swing joints. Conveyor equipment was supplied by James Brinkley. The 500 gal. per min. pump is a Byron Jackson.

Charles Peto of Hammermill Dies of Heart Attack

● Charles B. Peto, manager of Hammermill Paper Co.'s New York office, died suddenly following a heart attack early in the morning of Sept. 9 at Montauk Point, Long Island. Mr. and Mrs. Peto had gone from their home in Garden City, Long Island, for a weekend visit with friends.

Mr. Peto, who formerly had been a salesman for the Lathrop Paper Co., joined the Hammermill staff in 1928 under the late Roger B. Taft, and continued as New York office manager under Grant Richardson, who was appointed eastern district sales manager after Mr. Taft's death.

Funeral services at Garden City, Sept. 12, were attended by a host of friends in the paper industry. Mr. Peto leaves, besides his widow, one daughter, Janet, wife of Captain James P. McClain of Hammermill's sales staff in Erie, Penn., but now in the army service.

Hawley Log Barker Plant Under Way; Sumner Iron Works Makes New Equipment

● Hawley Pulp and Paper Co., Oregon City, Ore., through its vice president, and mill manager, Carl E. Braun, announces that work on its new $224,000 hydraulic log barking plant is proceeding according to schedule. Clearing for the concrete foundations began in late August.

Austin Co., Seattle, is constructing a concrete foundation, frame and steel super-structure, 86 by 218-foot building, in the east basin of the Willamette river immediately above the present sawmill. The structure will therefore stand at the south end of Main Street, along the old streetcar tracks between Oregon City and Canemah.

Machinery is to be furnished by the Sumner Iron Works of Everett, Wash.

The hydraulic barking unit is to be of the Crown Zellerbach type developed by Harry E. Bukowsky, plant engineer at that company's Port Angeles, Wash., mill, with certain improvements, including those already made at installations by Rayonier Incorporated at Port Angeles and Hoquiam, Wash.

All the log handling equipment will also be furnished by the Sumner Iron Works, including transmission, conveyors, etc. The barker, of the lathe type, will have hydraulic nozzle using something around 1,000 lbs. pressure and by special carriage moving from one end of the bed to the other as the log rotates and will bark logs from 8' to 22' in length and up to 54" in diameter.

Hawley Pulp & Paper Co. thus will become the fourth Pacific Coast mill to adopt the hydraulic method of bark removal. The new mill is expected to be in operation shortly after Jan. 1, 1945.

(In last month's issue of Pacific PULP & PAPER INDUSTRY, the Soundview Pulp Co.'s plans to install an adjustable ring type of hydraulic barker being made by Worthington Pump & Machinery Co., also was announced.)

THIS TARGET BALLOON for aircraft gunnery practice, about to be released, is lined with an impregnated creped cellulose wadding named Kacetex, product of Kimberly-Clark Corp., manufacturers of paper and paper specialties, Neenah, Wisconsin.

In balloons it replaces lightweight fabrics and rubber and has the added advantage of being repairable. A shot-up or torn Kacetex balloon may be quickly mended and used again by merely placing a patch of the liner material over the damaged part and applying heat.

Some Suggestions on How to Deal With Returning War Veterans at Mills

● The American Paper and Pulp Association makes some pertinent suggestions to company and mill managers regarding methods of dealing with returning war veterans, including those that will want jobs despite certain disabilities incurred in service.

Some of these suggestions, drawn up by the industrial relations committee of the APPA, are:

1. No "hero stuff" or "sympathy" —treat them as men.
2. However, the president or top executive of the company should greet a veteran ex-employe.
3. Medical exams to determine kind of work they can do.
4. Discuss handling of veterans with foremen and unions.
5. Veterans are receptive to training as a result of experience in service.

The National Association of Manufacturers also is giving attention to this problem of returning veterans, handicapped and otherwise.

One outstanding fact in this matter, of course, is that veterans, according to law, are entitled to their old job with no loss in seniority, providing they are physically fit and apply for a job within 40 days after discharge.

Disabled veterans will have their care provided by the government, but among them will be many who want to work and it is regarded by some industry leaders as a moral obligation of industry to try to place them.

The APPA Report

● Following are some excerpts from the APPA committee's report:

"While most employers will endeavor to place each returning veteran that worked for him before entering service, considerable finesse will be required in some instances to satisfy the veteran, the union and also the present incumbents.

"The actual process of re-employing veterans will require more care than is ordinarily given to employment in general. It is emphasized, however, that any special administrative devices should be as inconspicuous as possible since most veterans do not want sympathy nor do they want to be regarded as a problem or even as heroes. We believe, however, that one special consideration can be given them and not appear to violate the above and that is that the president or top executive present, personally greet the former employee and welcome him back.

"The first interview will be important to the veteran and should be handled with all the skill possible. A veteran of World War I or even of World War II, if skilled in interview procedure, would be an excellent man to have available. However, the emphasis should be on his skill rather than on being a veteran. By all means he — the interviewer — must be thoroughly familiar with all phases of the veteran's rights and privileges given him under the G. I. Bill and Selective Service System.

"The interviewer should also be familiar with the company's own policies that may go far beyond the G. I. Bill and the Selective Service Law.

"The interviewer should be aware of what the community or state is doing for returning veterans since these organizations may have developed some jobs or plans that are more attractive to the veteran than can be offered by the company. A large number of these local organizations are being set up to assist in the orientation of veterans and already many paper and pulp mill personnel managers are members of the boards of directors.

"At this first interview it should be made perfectly clear what the company has in mind for veterans in general and the veteran being interviewed in particular. Additional skills acquired during service can be discussed, his discharge papers examined and his like and preferences brought to light.

"Since the veteran's discharge papers will not indicate physical handicaps acquired since his induction into the armed service, a thorough medical examination will be in order. If this examination indicates that the veteran is not able to work at his former job or that he can perform only a limited amount of work, this should be discussed with him in the presence of the doctor.

"During this war emergency a lot has been learned about using handicapped workers and this knowledge should be capitalized and every effort made to fit the veteran into a job that he can handle efficiently. At the same time it can be pointed out to him the various courses open to him under state and federal legislation and his attention can be called to Local Veteran Clinics who will be skilled in retraining handicapped workers.

"The doctor who gives the physical examination should be asked to classify the men into one of the following groups, or some similar classification:

a. Can handle any type of work.
b. Those affected with some physical or mental disability which makes them unsuited for certain types of work, such as:
   1. Hazardous machinery.
   2. Heavy lifting.
   3. Work above ground level.
   4. Dust or skin irritants.
   5. Extensive walking or standing.
   6. Noisy work.
c. Those who have severe handicaps requiring special training or placement.
d. Those temporarily unable to work because of a physical condition, such as a contagious disease or tuberculosis.
e. Those who require extensive vocational rehabilitation before they can perform any work in the plant.

(Note: d and e cases are responsibility of Veterans' Administration and should be referred to them.)

"It is suggested that employment officials contact the local Selective Service or the veterans' re-employment representative in the United States Employment Service Office and ask to see Form 53 on veterans they expect to hire. This form (WD-AGO-Form 53) is supposed to be mailed to them when a soldier is separated and contains such information as branch of service in armed forces, education, civilian occupation, military occupation, cause of separation, type of discharge, etc. The medical record, however, will not be revealed. The veteran will have a copy of Form 53 also, but it is well to know about it beforehand since it will make induction that much easier.

"Another form (WD-AGO-Form 20) will be found at the same offices and contains even more information than does Form 53.

"If the personnel section plans on following the suggestion of having the doctor classify the veteran's

ability into the five or more categories, it is recommended that it prepare for this by classifying the various jobs that fit these categories —such as, jobs that encounter gas or fumes, which require walking, and which are noisy, etc. To have this done ahead of time will simplify matters greatly when the veterans return in greater numbers.

Discussion With Union and Foremen

"The broad general aspects of the veteran situation should be discussed with the union representatives and foremen so as to acquaint them with the overall picture of veterans' rights and what they as well as management will be expected to do. Individual cases need not be discussed with the union except as circumstances dictate and this will ordinarily be regarding seniority.

"Foremen should be schooled on how to handle veterans and usually this 'how' is to handle them as though they were not veterans, which may be difficult for some foremen to grasp.

"A great many veterans will return who had no previous employment since they were still in school or otherwise too young. But those former high school 'kids' will be men when they return. As many as possible should be encouraged to continue school under the terms of the G. I. Bill, and it should be pointed out to them that this country as well as the rest of the world will need every trained man it can get to mend the damage created during the war.

"However, some will want to go to work and work must be found for them. The paper industry will find a way to take its just proportion.

"**Handicapped Workers** — This group of people, many of whom, took jobs as a patriotic measure will be glad in many cases to leave but others who have acquired skills will be reluctant to do so. They spent long hours in learning their present jobs and by and large they have done well. It's going to be difficult, indeed, to push them out without good reason and it is not our feeling that this should be done, yet this group will eventually decrease in number.

"**Older Employees** — Persons of retirement age will, no doubt, want to retire especially if the company has a retirement plan in effect. Others are working only because there is no one to take their place. We believe it would be well to have plant personnel men find out how many plan to stay on after the war so that definite plans can be made for replacement.

"**Women on Men's Jobs**—While the industry during war time has found that many jobs formerly considered men's jobs can be performed equally as well by women, it is safe to conclude that post-war employment of women will decline to pre-war levels or fairly close to them. The industry had about 7 per cent women employees before the war and it probably will decline from the present 19 per cent to around 8 or 9 per cent.

Training

"The committee on industrial relations strongly advises that management does not overlook the importance of training. This is especially true in connection with veterans since probably two-thirds of their time in the armed forces was spent in being trained on specific jobs. They are receptive to training methods and will be inclined to follow instructions but will also expect these instructions to be concise and to the point.

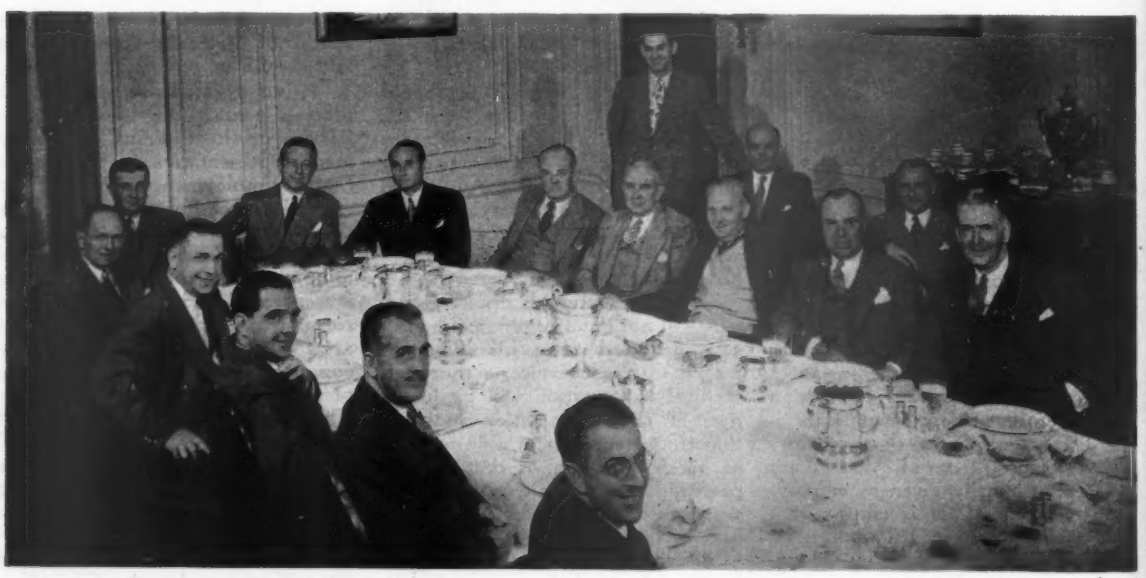
"The importance of training foremen to handle the veteran situation should not be overlooked. The foremen should be familiar with all phases of the veterans' rights and employers' obligations.

"The foremen must be skilled in training methods, especially as they apply to handicapped workers since this problem must be met fairly and squarely in order that the returning veteran will be given every chance possible to succeed in his job."

NAM Suggestion

● The National Association of Manufacturers also stressed coaching of foremen.

"The foreman can perhaps do more than any other individual in



MANY FAMILIAR FACES IN THE PULP AND PAPER INDUSTRY are in this group. These were contestants in the recent annual golf tournament of Bulkley-Dunton Pulp Co., entertained at the N. Y. Metropolitan Club by their president, FRED ENDERS. Clockwise from right foreground: MILTON BAILEY, ROGER EGAN, STEPHEN GOERL, WALTER LAWRENCE, HARRY PRATT, WALTER SHEEHAN, Mr. ENDERS, R. M. BUCKLEY, EUGENE MULLANEY, CHARLES E. MUELLER, PIERRE LODDENGAARD, E. J. ROSE, ERIK THOMAS. In background left to right: REX VINCENT, ROBERT GREENE and WILLIAM M. KNOX.

the plant to help the veteran make a smooth and satisfactory adjustment to his job," declared B. G. Parker, chairman of the NAM committee on development of supervisory relations, and president of the Youngstown Foundry and Machine Co., Youngstown, Ohio.

"The veterans' first few weeks on the job are undoubtedly the most critical period of his changeover from military to civilian life. In these first few weeks the foreman will play a very important role. His attitude toward the veteran and his ability to smooth the veteran's readjustment period will, to a very large extent, influence the kind of adjustment that the ex-serviceman and woman will make to their jobs. One thoughtless act may be harmful," continued Mr. Parker.

"It behooves management to make sure that supervisors are given the specific training and information they need to deal soundly with the able-bodied, the physically handicapped and those who still carry the mark of nerve shattering experiences."

Job Study for Veterans At Westinghouse

● Through experience employing physically handicapped persons during the war years, and plant-wide surveys in its 25 plants and 35 manufacturing and repair units, the Westinghouse Electric and Manuf. Co. has learned that in some departments as many as 83 per cent of the jobs can be performed by disabled veterans with limited handicaps.

"The transition period from war to peace will present extensive industrial relations problems," said Vice President W. G. Marshall. "We accept the responsibility to do everything possible to help our former employes, who come back to us from the armed services as medically-discharged veterans. This aid, to us, means helping these men in an unobtrusive but friendly and objective way to readjust their lives to the more normal ways of civilian life. We have coordinated the activities of our employment and medical departments and training facilities to assure a reemployment procedure that is personalized, tactful and considerate.

The company already has 1,800 war veterans in its employ, all of them either disabled in battle or medical discharges. The number is increasing daily. Because this survey is still incomplete, Mr. Marshall said, Westinghouse can place no definite limit on the number of jobs disabled veterans can do, but in some of the manufacturing divisions, where such a study has been completed, figures show that 83 per cent of the jobs can be done by men with only one eye.

Eighty-two per cent of the jobs can be done by men who are deaf.

Nineteen per cent can be done by one-legged men.

Seventeen per cent of the jobs can be filled by men who must use a cane or crutches.

Camas TAPPI Meeting Nov. 14 Will Discuss Utilization of Forest and Plant Waste

● Two discussions on a timely and significant subject—the utilization of forest and agricultural waste materials—will highlight the November 14 meeting of the Pacific Section of TAPPI in Camas, Wash. A big turnout is expected because of wide interest in the subject.

William Pittam, who serves under Research Director Ray Hatch in the Pulp Division of Weyerhaeuser Timber Co., Longview, Wash., will give a paper on extraction of tannin from waste western hemlock bark. This paper will be entered in the Shibley award competition for young men in the western mills, which is to be decided next June.

W. B. Van Arsdel, of the Western Regional Laboratory, U. S. Department of Agriculture, Albany, Calif., has accepted an invitation to discuss the work of that laboratory of special interest to the pulp and paper industry. This is one of the government laboratories established in recent years to look into possible uses of all kinds of agricultural (including forest) and industrial waste materials. It is reported that this laboratory has done work on yeast and tannin.

A motion picture on the manufacture of cellulose and cellulose derivatives is expected to be shown.

Erik Ekholm, general superintendent, Puget Sound Pulp & Timber Co., is chairman of the Pacific Section. Harold W. Bailkowsky, technical director, Everett, Wash., mill, Pulp Division, Weyerhaeuser Timber Co., is vice chairman and has arranged the program.

Robert M. True, General Dyestuff Corp., Portland, Ore., is secretary-treasurer, and is sending out announcements of the meeting.

Shortages Will Continue 10 Months After VE Day

The paper and paper board shortage and high demands for paper will continue probably for ten months after "Victory in Europe" day, U. S. WPB officials told members of the Overall Paper Industry Advisory Committee at its recent meeting.

Pulp wood, pulp and paper inventories were reported low and the woods situation on the Pacific Coast was becoming serious because of shortages in trucks, tires and loggers.

Fourth quarter pulp allocations will approximate those of the third quarter, the industry was informed by government officials.

Army representatives said that military demands for paper in general will probably not fall off substantially for some time after "VE" day. Requirements for wet-strength map paper probably will decline after the German surrender.

Machinery Restrictions

Retention of modified restrictions on the purchase, lease, rental or acceptance of paper mill machinery was recommended by the Pulp and Paper Machinery Industry Advisory Committee at a recent meeting.

It was the consensus of the Committee that since Order L-83 is a distribution order and does not restrict or control production, it should be retained in modified form for an indefinite period after "Victory in Europe" day.

WPB officials said they want the mills to put orders in for repairs and replacement ahead of new machinery.

The distribution curve for machinery and equipment is ascending each week. Certain applications, felt to be less urgent than others, are temporarily deferred, but they are released as soon as possible. Applications for replacement of obsolete or worn-out equipment are now being given immediate consideration by the Paper Division, Forest Products Bureau, and War Production Board. Mills now are urged to submit applications for all machinery needs, including post-war requirements. In order to maintain present high production, orders are being placed in machinery manufacturing plants, to be filled when military cut-backs occur. It all adds up to a much brighter picture for the mills."

F. T. WEBB, recently elected secretary of Bates Valve Bag Co., Canadian subsidiary of St. Regis Paper Co. He was an insurance company investment specialist.

Whit Morden Gives Address At California Papermakers

● C. W. Morden, Morden Machines Co., Pacific Building, Portland, Ore., was scheduled to make the principal address at the October 19 meeting of Papermakers and Associates of Southern California.

His subject will be "Stock Preparation —Continuous Refining," thus dealing with one of the new trends in the industry which have aroused wide interest.

7,000 Prisoners Now Cut Pulpwood

● More than 7,000 war prisoners now are engaged in cutting pulp wood, according to Thomas F. Lynch, assistant director of the printing and publishing division, War Production Board. About 2,500 more prisoners were being put to work recently in southern camps.

"The woods labor shortage is due largely to unattractive wages in wartime," Mr. Lynch declared. "The war prisoners are producing about four-fifths of a cord per day per man. The prisoner camps are of the same type as those in which the American military are housed, something that cannot be said for many logging camps."

None have been used in West Coast woods because of the dangers involved in western logging technique and also because of union objections.

DEVELOPMENTS IN SOUTHERN U.S.

Expansion at Southland Paper Mills . . . Tennessee Plant to Make Newsprint . . . Association Work and Laws

By W. E. CROSBY

(The author of these notes, Mr. Crosby, toured southern United States as a representative of Pacific PULP & PAPER INDUSTRY. He has had many years of experience as an observer and writer on forest industries and forestry problems in other regions of the continent).

CONSIDERABLE national attention in the industry has been drawn to the new sulphate pulp plant recently put into operation at Herty, Texas, just outside the town of Lufkin, by the Southland Paper Mills, Inc. This additional sulphate pulp production, which aims eventually to reach a goal of 3,000 tons a month, is filling one of the most critical wartime needs.

It is fine-looking new plant but there has been some difficulty in getting materials to complete the bleach plant and some temporary installations had to be made with equipment which will be replaced when government restrictions and priorities are not so rigorous. The bleach plant is in production but it has been impossible to reach the capacity contemplated under the original expansion program.

Since Jan. 17, 1940, the Southland Mills have been producing newsprint and this company is famous as the first one to produce newsprint from Southern yellow pine. The kraft mill unit is producing bleached pulp for newsprint furnish, permitting an expanded production of newsprint, and also some of the bleached pulp is being marketed. Pulp production capacity is being increased from 165 tons to 340 tons daily, with completion of the new sulphate mill.

At the time of my visit, they had three digesters in the kraft mill and three bleach tanks and were using about 400 cords of wood per day. In making newsprint, they mixed 20 per cent bleached kraft pulp with the groundwood. They have extensive land holdings and an enlightened conservation policy in using timber resources.

Texas newspapers are proud of their newsprint industry and all reports indicate they are determined plies to a great extent in the south. to have their own newsprint sup- They are satisfied with the standard newsprint product made from southern pine.

Second Newsprint Mill

● The mill near Lufkin is still the only one making newsprint in the south but before the war plans were under way by the Tennessee Valley Paper Mills, Inc., of Knoxville, Tenn., to build a second one. This will be on the great Tennessee River at Savannah, in Hardin county, southwestern Tennessee. Construction of this mill, held up since late 1942, will soon be completed.

Labor turnover at Southland Paper Mills has been high, due to men being inducted in the services and others leaving for defense jobs. There has been a somewhat lowered efficiency in operations, as in many other mills, and it has been necessary to employ a number of women.

But the outlook for new equipment and for the chemicals required in the kraft process is looking up and the future is very pleasing to the officers of this company.

They, too, have had their bad luck this year. E. L. Kurth, who is president of both the Southland Paper Mills and the affiliated Angelina County Lumber Co., having undergone a throat operation in February that kept him hospitalized for some time. Albert Newcombe, the treasurer, also was seriously ill last spring.

Arthur Temple and Richard W. Wortham, Jr., are vice presidents, the latter in charge of operations at the mill.

These operations are in the heart of the storm belt where last Januarv 1,000,000 cords of pulpwood was

THESE PICTURES WERE TAKEN IN TEXAS by a Pacific PULP & PAPER INDUSTRY editor . . . These are rather unusual woods scenes in the south, the methods of logging being more like those practiced on the Pacific Coast. Left: A truck is being loaded at an Angelina County Lumber Co. camp, which brings out wood for the jointly owned Southland Paper Mills of Herty (Lufkin), Texas.

blown down. This is being salvaged, largely by use of prisoners of war. A large part of the blown down timber was on 40,000 acres owned by the Angelina company.

Timber Supply

● The affiliated Angelina County Lumber Co., at Keltys, is one of many southern forest industries which believes it can operate on a perpetual basis and is planning accordingly. Incidentally, this company takes credit for having been the first lumber producer in the United States to have been awarded an Army-Navy "E" award.

The Angelina company was established in 1887 and has been continuously under one ownership, the second and third generation now being at the helm.

With Mr. Kurth, as president of this company, are S. W. Henderson Jr., vice-president, D. W. Thompson, secretary-treasurer-manager, and W. H. Guggolz, sales manager.

It has a railroad logging operations although some trucks are now being used. They also use some Caterpillars in their logging.

Mr. Thompson, discussing the future of the Angelina County Lumber Co.'s operations told Pacific PULP & PAPER INDUSTRY his folks for a long time have felt that the business could and should be maintained on a perpetual basis and that they hope through good forestry practices and efficient operating, to maintain a yearly cut of around 30,000,000 feet per year.

The company, he said, has always followed the policy of keeping its timber lands and for upwards of fifteen years has been actively and aggressively engaged in growing trees as a crop. They are now of course cutting a second and in some cases a third crop. They log on a selective basis, harvesting from four to five thousand feet to the acre. Mr. Thompson stated that in their region it is thought that the land will produce about 230 feet of timber per acre per year.

The Angelina company believes that great progress will be made in prefabrication in the south and that wood will be used in increasing quantities as a basic raw material for the chemical industry.

The company is interested in one or two other mills, and like many sizeable southern mills, buys the output of numerous small plants. It is also interesting to note that the company represents the St. Paul & Tacoma Lumber Co., Tacoma, Wash., and in normal times sold many millions of feet of St. Paul's fir and red cedar shingles.

Herty is just a short taxi ride from Lufkin. When I called there, I found throughout that region that train service is poor between small towns and bus service is much better.. The principal hotel at Lufkin is the Angelina.

TIMBER GROWING IS TAUGHT TO FARMERS

UP to the time the war interrupted its program, an organizatiton known as the Southern Producers Conservation Association of which Frank L. Hayward Jr. is secretary and manager and which has offices in the First National Bank Building, Atlanta, Ga., was carrying on a very aggressive and successful timber growing educational campaign throughout the south. The work has been halted temporarily for obvious reasons and Mr. Hayward is devoting most of his time to WPB activities, one of these right at the moment being the establishment of war prisoner camps in the south.

This timber growing campaign of Mr. Hayward's was aimed to get better forestry started on private lands. The association did not concern itself with lands of members because most of these firms had good forestry departments which were working hard growing timber. What Mr. Hayward wanted was to see that all timber lands in the south continue to grow trees.

The work of the association had many angles and included such things as field demonstrations of timber growing. The association would lay out tracts and actually log. On one it would do everything wrong that could be done wrong; and on others it would follow correct and approved logging and forestry practices. They held these demonstrations in many parts of the south. Thousands of land owners including farmers saw what was done.

The association has prepared and issued more than two and a half million pieces of literature, telling how to log and how to get a new crop of trees started. Just before the war started, the association had seven trained foresters on its staff.

Mr. Hayward stated that logging contractors have been tremendously interested in this work and that as a result the selective logging idea has been given great impetus in the South. He said contractors now log selectively on areas as small as ten acres.

The association has also helped farmers get seed trees. In one year it supplied about 3,500,000 seedlings for forest planting.

Many meetings were held all over the South, at which better forestry, better cutting practices were explained and discussed.

The work, Mr. Hayward states, will, he expects, be resumed after the war.

PROGRESSIVE FOREST LEGISLATION

ALL the Southern states have what are considered progressive forest laws, notably Maryland, Lousiana and Mississippi, which in April enacted a new timber cutting act aimed to regulating cutting on all timber land, and providing for the leaving of seed trees, etc.

Louisiana was one of the first states to enact a forest conservation act, an act which enables timber land owners to carry their cutover lands until a new crop grows with assurance that taxes meanwhile will not be raised to confiscatory levels. In other words, if a timber land owner decides to take advantage of the Louisiana act, he knows the tax situation on that land will remain the same for a period of forty years.

It is interesting to note that in both Louisiana and Mississippi the forest lands were sponsored and helped toward enactment by lumbermen.

Louisiana's state forester is Massey Anderson, who makes his headquarters in New Orleans. Mr. Anderson advised Pacific PULP & PAPER INDUSTRY that some six or seven hundred thousand acres of land are now under the state's forest conservation law and that 30,000,000 of the 20,000,000 acres of forest lands in the state are under management practice.

Mr. Massey stated that fire protection is one of the major functions of his department. The state is divided into five districts each, having an experienced forester in charge. There are lookout towers strategically located throughout the forest areas.

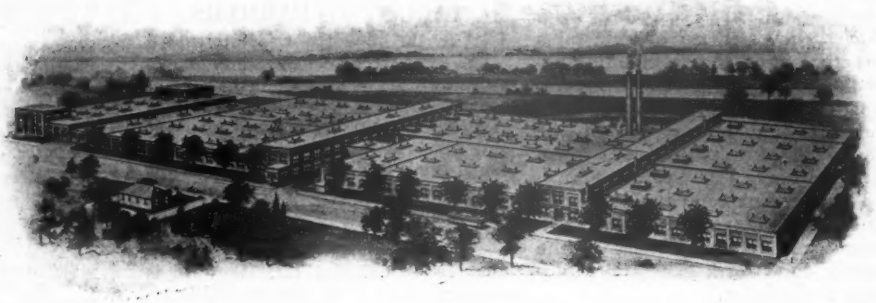
Additional forestry legislation may be enacted in Lousiana, particularly an act which will insure owners leaving seed trees when areas are logged and which may even undertake to set up minimum cutting regulations, as has been done in Mississippi and Maryland.

Louisiana has a severance tax. This provides for payment of a stipulated tax when forest products are removed from lands which are under contract with the state under the conservation act. The severance fees now in effect are as follows:

Comparative Figures Showing Revenue the Parish Receives from Regular Severance and Timber Conservation Contract Severance
(Expressed in Cents per M Bd. Ft.)

	Regular Severance	Parish Receives	Tbr. Contract Severance	Parish Receives
Cypress	26	5.2	60	45
Pine	12	2.4	28.5	21.4
Ash	24	4.8	60	45
Hickory	24	4.8	48	36
Cottonwood	12	2.4	30	22.5
Magnolia	12	2.4	36	27
Red Oak	12	2.4	30	22.5
White Oak	12	2.4	36	27
Poplar	12	2.4	48	36
Sycamore	12	2.4	30	22.5
Red Gum	12	2.4	28.5	21.4
Other Gum	7	1.4	28.5	21.4
Other Hardwoods	10	2.0	30	22.5
Pulpwood (per cd.)	6	1.2	6	4.5

Keyes Fibre Co.'s Molded Pulp Products Make Good in War--Hold Promise in Peace



KEYES FIBRE CO., Plate and Dish Factory, Waterville, Me.

FOR nearly three years the Keyes Fibre Co., of Waterville, Maine, has been making a remarkable line of long-fibred wood pulp molded products of the phenol-formaldehyde type.

They are products of remarkable impact strength, smooth and lustrous, highly resistant to abrasion, to acids, to temperature changes. They will not warp or shatter and remained unchanged even after long immersion in boiling water.

What are these products? Only recently has the veil of wartime secrecy been lifted so just two of the special products for the war program can be indentified. These are valve wheels installed on U. S. destroyers and pistol grips for the armed forces.

More prosaic products have been housings for adding machines and other parts of business machines, parts for refrigerators and radios, electrical outlets and junction boxes, automobile license plates and a line of trays, plates and bowls. This line of trays, etc., are the only products which have had limited availability for civilian use.

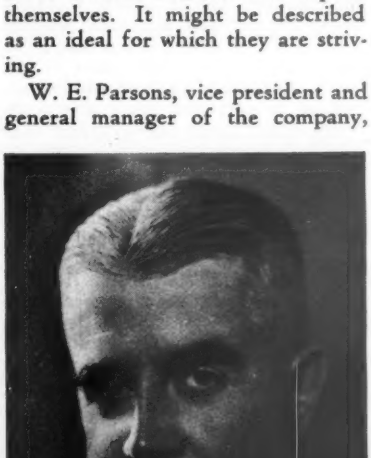
However, these are not ephemeral war-time substitutes for hard rubber, steel and aluminum products, except possibly in one or two of the products for direct military use. These products have shown so many advantages over rubber, steel and aluminum that Keyes Fibre Co. is enjoying a very rosy picture of peace-time business, soon to come.

When wartime bars are down, the Kys-Ite trade name stands a fair enough chance to become quite famous in industrial plants and business offices as well as in the kitchen.

Meanwhile, Keyes Fibre Co. is continuing to improve its equipment and its product. New high frequency equipment is already making better products at lower costs by shortening the curing time and permitting lower temperatures and pressures in the moldin ; processes.

Today, these products are made of 50 per cent spruce pulp (no waste paper or rags are used). However, it may yet become a 100 per cent product of wood, with lignin resines replacing the synthetic resins now used. This, of course, is only a possibility but it is a possibility expressly recognized by the Keyes Fibre officials and technical experts themselves. It might be described as an ideal for which they are striving.

W. E. Parsons, vice president and general manager of the company, is enthusiastic over this recent addition of resin-pulp lines to the Keyes products. That's to be expected, but at the same time he is a hard-headed "down-eastern Yankee" of the old school, who has spent most of his career in the New England pulp and paper industry.



W. E. PARSONS, Vice President and General Manager, Keyes Fibre Co., who has devoted his life to pulp and paper industries of Northeast U. S., directed Keyes since 1929.

He says:

"It would appear that the combining of the structural advantages of molded pulp with resin is destined to become a major development. We believe this process will find much favor in industrial fields, where they have long been searching for a material with the principal characteristics of ordinary plastics but having the necessary strength to replace other materials less satisfactory."

Shooting For Big Field

● He and other Keyes officials declare they are not among the gullible individuals who believe everything from a lady's lipstick to a road roller is going to be made from resinous products. They appreciate their products can only have a place in industry and commerce earned, against stiff competition, by virtue of low costs, appearance and other advantages. Yet they are convinced the field ahead for Keyes Fibre is unlimited. They are shooting for the large industrial and business market—not decorations and gadgets.

Keyes Fibre Co. had been making molded paper plates and dishes for 26 years (since 1903), when Mr. Parsons became general manager in 1929 after having been connected at various times with Great Northern Paper Co., Brown Co., and Orono Pulp & Paper Co. Born in North Anson, Maine, he was trained as a civil engineer at the University

of Maine, and later engaged in construction work in various parts of the country.

Following Mr. Parsons through Maine University was E. E. Sawyer, a native of Milan, New Hampshire, and, along with Mr. Parsons he joined the Keyes organization in 1929. He is chief chemist and has been in charge of all research and development work in the molded pulp field. Mr. Sawyer's previous experience, like Mr. Parsons', had included a period with Orono Pulp & Paper Co., and he also had been with E. I. du Pont de Nemours & Co.

In the early days, Paprus pie plates, in various sizes for use by bakers, was the main part of the company's output. It is still an important line. Savaday table plates and Savaday butter dishes, a new line of white, rigid grease-resistant products, were developed in the late 1920's.

Then in the '30's came the Chi-net food serving plates, ice cream dishes, blue plates and bowls. These faithfully reproduced the appearance, size, shape and even "feel" of expensive standard chinaware. It is interesting to note that these round, square and oblong shaped Chi-net dishes, etc., were the result of requests from customers who wanted something fancier than the ordinary paper plates for dressing up their tables. The Savaday cake circlex, another article of increased rigidity to keep cakes in shape, without absorbing shortening, was developed about this same time.

Then came Bake-O-Ware molded pulp baking dishes, placed on limited sales in New England stores for two years. It was possible to hold the hottest greases and bake even pork and beans in Bak-O-Ware. The sales company's mathematical sharks figured it baked faster and better than other dishes, saving six to 15 minutes of every hour of baking and ten to 25 per cent in gas, oil and electric costs. It is an attractive line—looks like brown pottery—and is cheap enough to be thrown away after using.

E. E. SAWYER, Chief Chemist, Keyes Fibre Co., in his office at Waterville, Maine. In his hand he holds one of the resin-molded wood pulp valve-wheels (14-in.), thousands of which have been placed on U. S. destroyers in fire-control colors. In many ways they have proved superior to the aluminum they replaced. On the case, behind Mr. SAWYER are three sizes of the new Kys-ite resin-molded wood fiber serving trays, which won't chip, warp or stain—and cannot be injured by boiling.

In the next important step for Keyes came the Kys-Ite articles, already described at the beginning of this article. Resin-molding development at Keyes began in 1938 under the presidency of the late Walter Wyman. Today the president of the company is D. S. Brigham.

In the production and development activities, under the direction of Mr. Parsons, are G. D. Watson, general superintendent; W. H. Randall, the chief engineer; G. R. Johnson, superintendent of the plastics division, and chief chemist Sawyer.

There are six grinders and eight wet machines for production of mechanical pulp, with capacity production rated at 60 tons of pulp per day.

Chicken roasted in BAKOWARE molded pulp baking dish—a Keyes Fibre development of more recent years. On sale in a limited number of New England stores for over two years. It bakes faster and more evenly than old-fashioned pots, holds the hottest greases, and looks well on table—like brown pottery. It saves fuel for housewives and eliminates "pot wrestling"—they can afford to throw it away grease, waste and all.

STORY OF THE VALVE WHEEL

• We first heard of the various-colored molded pulp hand-wheels for Uncle Sam's warships from Capt. Vincent W. Grady, U. S. Navy, who now holds a high executive position in the Philadelphia Navy Yard, and who lives in an old Dutch Pennsylvania farmhouse at Newtown, Pa. Earlier in this war, as a commander, Mr. Grady experienced several important sea battles in the Pacific as chief engineer aboard the carrier Saratoga, a frequent and familiar caller in Pacific Coast ports. After an extended term of sea duty, in which he became thoroughly familiar with the quality of equipment a war vessel requires in battle, Mr. Grady

went to Bath, Maine, where he was in charge of destroyer construction.

It was there that he was shown the pulp-molded valve wheel. The Navy had been experimenting with strategic metals in an effort to find a substitute for aluminum wheels, but there naturally was considerable skepticism as to the virtues of a pulp-resin product. Mr. Grady, who had been under fire, had a practical outlook and he and a few others were "sold" on the advantages of the pulp-resin product. We hope he won't object to our revealing that he became such an ardent advocate of these Keyes products that friends decided his initials—V. W.—were appropriately also initials for a nickname "Valve-Wheel" Grady.

There were also two other men who were not satisfied with the attempted metal replacements for aluminum. They were William S. Newell, president of Bath Iron Works since 1927 and director of Mack Trucks and other companies, and his chief engineer, S. H. Towne. Mr. Towne concluded the wheels could be made of plastic material and Mr. Newell backed him up and began a search for the right product. Mr. Newell didn't have to search far afield. He already knew something of what Keyes Fibre Co. was doing at nearby Waterville and invited Mr. Parsons to submit samples. These passed all reasonable ordeals.

Three Keyes men were assigned by Mr. Parsons to work with Captain Grady and Mr. Towne on the project. These were Mr. Sawyer, Mr. Randall and Mr. Johnson.

These five men agreed finally on a design and the first sample 14-inch wheel was made on October 23, 1942. It was sent to Washington. Mr. Newell was impatient. He put another wheel in a trim little case and rushed off to Washington himself. After lengthy discourse with a group of Navy men, he settled the issue by slamming his wheel on the floor. It bounced back, undamaged. We had heard unofficially that some unreasonable fire tests had almost killed the project but practical Navy men finally decided that kind of a test was unfair and meaningless.

W. S. NEWELL, President, Bath Iron Works Corp., whose faith in molded pulp valve wheels for U. S. destroyers was justified.

Production Commences

● Priorities were issued for preform and curing molds and drying machines. Wheels from five to 24 inches in diameter went into production. They were installed in approximately 1,000 control points in each destroyer. They saved 410 pounds per ship in weight by replacing aluminum.

As a conductor of heat, the resin fiber wheel rates 1000 times below the aluminum, and advantageous factor in handling those on high-pressure, high-temperature steam lines.

It is a non-conductor of electricity. Its abrasion resistance has been found superior to that of aluminum. Equipped with a bronze hub, it is not corroded by sea air and salt water when used above deck. When tested to failure by the Navy, the plastic wheel still retained enough basic strength to operate its valve in emergency, though a section of its rim had been broken away.

The wheels were molded in a variety of colors and the Navy instituted a schedule of colors to differentiate the function of different piping systems and valves. In emergency, when the life of the ship and her crew members were at stake, a man could be instructed to open or close handwheels of a certain color when there was no time to explain to him the functions of the valves they control.

From the point of view of man-hours saved by converting these handwheels from aluminum to a plastic material, the following data are pertinent: approximately 727 man-hours were required in the aluminum foundry and in the machine shop to complete the wheels necessary to fit out one destroyer. To manufacture and finish an equal number of plastic wheels takes only 444 hours, of which 128 hours represent work done by women. Thus the total of hours of labor is 282 per destroyer, or 410 if male labor alone is considered.

These valve wheels now are available to private essential industries. They are recommended for pulp and paper mill steam lines and for places where non-corrosive wheels are wanted.

The molding of the handwheel followed the procedure developed for other articles composed of preformed fibrous plastic material: a pulp incorporating phenolic resin was preformed to approximate shape and subsequently cured in a second operation. Preforms in this case were suction molded from a mixture consisting of a long-fibered pulp and a phenol-formaldehyde resin. When molded, the preforms corresponded in size and shape to

RECENT KEYES CO. ad, which shows two products—molded pulp pistol grip for war (its expansion co-efficient had to be suitable for close tolerance with metal) and a lustrous flower pot for peace. Both survive rough handling, heat, moisture and oil.

the completed wheel. A carefully controlled drying process followed, after which the final curing of the preforms took place in a conventional compression mold under the necessary heat and pressure. The metal hubs were loaded in the mold as inserts and the only finishing operation required was the removal of the flash.

A reduction in sectional thickness and an increase in density constitute the only physical change induced in the preforms by the application of heat and pressure. The great strength of the finished wheel is a result of compacting the interfelted fibers and cementing them together with the cured phenolic resin.

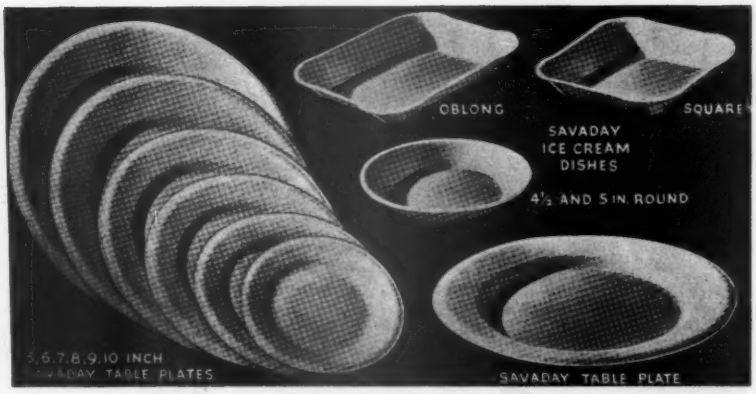
The valve-wheels, of course, were a Kys-Ite product, just as are the pistol grips, adding machine housing, rollers, bowls and trays. It's an interesting war story, but perhaps more important are the post-war possibilities of the Kys-Ite line.

Mr. Parsons has given to Pacific PULP & PAPER INDUSTRY for publication this more complete description of the process:

TECHNICAL DESCRIPTION

"The molded pulp industry has for many years employed a vacuum process for forming or felting pulp to shape. These shapes, depending on the use to which they are to be put, have been dried by various methods without upsetting the felting structure formed by the vacuum process. There have been some attempts in the past to impregnate such articles after manufactre in an effort to develop a strong, dense product. While this effort has been successful in some cases, it is expensive and slow. Experiments were conducted by our technical staff along this line without very satisfactory results. It was then decided to attempt to incorporate synthetic resin by some means into the molded product. Finally this was accomplished and a preform produced not unlike the regular molded pulp shapes in appearance, but carrying sufficient resin content so that when this preform is subjected to heat and pressure the resultant article of this secondary step is a plastic product of unusual strength and excellent appearance.

"These resin bearing pulp preforms are made by the mixing of pulp and synthetic resin in regular pulp beating engines similar to those used throughout the pulp and paper industry. The relative amounts of pulp and resin are varied to meet the need of the particular article to be produced. After a uniform mixture has been accomplished in the beater, the stock is pumped to automatic molding machines on which the regular pulp shapes are formed. The resultant preform is then dried on a travelling belt passing through a tunnel dryer. The article is then placed between compression molds and cured in the usual manner. Incidentally, high frequency equipment has been installed for treatment of these preforms before their introduction to the compression molds. It is believed that this equipment will result in shorter curing time, lower pressure, moderate temperature, a better surface appearance on the cured article and naturally should result in a lower cost of manufacture.



The SAVADAY plates were developed several years ago by Keyes Fibre. They are waterproofed, grease-resisting wood pulp products, and make folks who like to throw dishes away instead of washing them very happy.

"It should be remembered that the fibrous plastic preform is approximately the shape of the finished article, although the bulk is considerably greater. The products after curing retains the preform shape unchanged except for compacting but has the added strength of the interlocking fibers in its structure. It is obvious in this procedure, since the preform was originally of the shape desired, that no stresses or strains are set up in the finished product.

"If desired, such articles can be made from layers of material containing varying quantities of resin. The body layers or cores may contain a large percentage of fibre and a low percentage of resin. Likewise, the surface layers may be rich in resin, thereby giving excellent outside appearance and a protective coating of high resistance against wear or anything that may come in contact with it. When the article is finally cured the effect is that of a monolithic piece of material, since the resin content in all layers flow in every direction, completely binding the product into one piece. The result of the combination of these two types of layers in certain articles gives great impact strength and rigidity to the final product, as well as considerable flexibility without danger of fracture. It can almost be said that the fibrous plastic article which has been produced in this manner is as much a product of the pulp molding technique as it is a product of the plastic industry.

"You can readily appreciate that certain small details and shapes cannot always be molded, due to the bulk that is present if the preform were to follow every small detail. In many cases, it is ncessary to flow this material to meet the above condition. This has been done very successfully and, while the strength is somewhat diminished, the fibrous structure of the material seems to be uniformly maintained throughout. The molding of exact preforms is to be preferred, but where this is impossible the flow method seems to meet all reasonable requirements.

"It is possible by this process to produce excellent colors from medium to dark shades, but thus far no pastel shades have been possible. The material machines well, is not affected by boiling water, and has a water absorption of from 0.3 per cent to 2 per cent after 48 hours immersion. Its specific gravity is approximately 1.4 and the material is of high dielectric strength. It has a tensile strength of approximately 12,000 and a flexural strength of approximately 18,000. Its compressive strength varies from 10,000 to 35,000, depending on the manner applied with respect to the several layers of which the article is made up. Weak acids have none to slight effect on it and weak alkalies a very slight effect. It is not affected in any way by oils, gasoline, alcohol and chemicals of a similar character. The modulus of elasticity is 1.5×10^6.

It is interesting to note that this combination of pulp and resin is not affected by extreme temperature ranges. Tests have been conducted from 40° below zero to 275° without ill effect either in shape or appearance. This technique also permits the molding of large pieces without difficulty, the only limiting factor being the platen size and the capacity of the press in use. This feature in itself would seem to offer great possibilities, since it is very difficult with the ordinary molding compounds to produce articles of large size having sufficient strength. Laminated products, long manufactured by the industry, can, of course, be produced in almost any size and are of great strength. On the other hand, they are limited as to the shape of article for which they may be used.

Sales Company

● For 33 years, the John M. Hart Co., Inc., has been manager of sales for the Keyes Fibre Co. Their offices are in the Graybar Building in New York where a representative of this magazine met and discussed the lines with E. F. Ahearn, president, and H. D. Archibald, vice president.

From 1911 to 1938, the late Thomas L. Waller was Pacific Coast representative of John M. Hart Co. Walter Brown succeeded him and Mr. Brown's present offices are in 540 Merchants Exchange

The CHI-NET line of waterproofed and grease-resisting plates made by Keyes Fibre Co., molded from spruce pulp, looks and even "feels" like china. This is practically gone from civilian scenes, being mainly reserved for war plants, camps, hospitals, etc.

Rayon Tire Cord Is Declared the Best

● The Fisk Tire Division of the U. S. Rubber Co. at Chicopee Falls, Mass., has announced that, before the war is over, all truck tires being manufactured there will be of rayon, rather than cotton, tire cord since the former cord is light and stands heat better. This plant is the largest tire factory in the East and is reportedly making 11 per cent of the nation's military truck tires.

Most of the rayon cord is now manufactured from special high Alpha wood pulp.

It was further pointed out that cotton cord would still be in demand for passenger car tires, as the heat problem there is not as great. The Fisk plant plans a post-war output of 20,000 tires a day, a production double its pre-war capacity.

More Straw Needed By United Kingdom Mills

● Abundant supplies of straw in Scotland have, somehow, failed to reach the paper-making centers of that country, says a foreign publication, and a shortage of this papermaking material has been reported by the industry.

Building, San Francisco.

Blake, Moffit & Towne's 16 divisions only recently took over sales of the Bak-O-Ware line of dishes.

Keyes industrial lines, including valve wheels are handled in Seattle and Portland, Ore., by Northwest Plastics Industries, headed by Robert H. Anderson and Marshall G. Hopkins.

The Paper Situation

A purchasing agent who requested a paper supply house to send him a new catalogue received this reply: "The only part of our catalogue we are still certain about is the line that says 'Est. in 1885.' All other information and prices have been withdrawn."

Many Suggestions Are Being Used, Brisbois Tells Port Angeles Employes

●N. M. Brisbois, vice president in charge of operations of Fibreboard Products Inc., says that the remarkably high average of 75 per cent of employe suggestions are being accepted and put into use by that company.

He made this statement at the Port Angeles (Wash.) Division's Pivot Club dinner at the Peninsula Gold Club in that city on Sept. 12.

His comment on the use made of suggestions by Fibreboard was all the more interesting because, as he said, several thousand suggestions already have been submitted at the various Fibreboard mills since the inception of the plan.

C. V. Basom, resident manager at Port Angeles, presided at the meeting, and introduced among guests the resident managers of two other mills in that city —Ray Dupuis, of Crown Zellerbach Corp., and William E. Breitenbach of Rayonier Incorporated.

Charles Key, of Pacific Telegraph and Telephone Co., and his assistant, Philip Abb, were introduced and Mr. Key talked on telephone and telegraph developments, demonstrating some new equipment.

Mr. Brisbois made his address and presented service pins to the following personnel:

For 20 years' service—Roy M. Avery, Nels Botnen, Arthur Wheeler, Wm. Hodgson, Bert Adams, Alfred Solway, Burth Wilkie.

For 15 years' service—Nelson Hartnagel, Charles Heckman, Martin Faherty, Ralph Lawrence, Lyle F. Lewis, Robert Stanard.

For 10 years' service—Herbert W. Curren, Darrel Fairchild, Austin Wyman, Harry Lannoye, Claude Leonard, Ed Wait, B. W. Ellsworth.

For 5 years' service—Joseph K. Stanley, E. I. Woodside, N. J. Zimmershield, Paul C. Waite, Ed F. Herman, Lee C. Durham and Jess Hunter.

NEWS OF *The Pulp and Paper Industry--*

15 YEARS AGO

President P. H. Glatfelter of the national TAPPI said that organization's membership was "top-heavy" with chemists and he urged all the sections throughout the country to get busy and bring in some engineers.

First fall meeting of the new Pacific Section of TAPPI was held Oct. 5, 1929, in the Hotel Winthrop, Tacoma, and R. S. Wertheimer, of Longview Fibre Co., was elected chairman; R. Reid, St. Helens Pulp & Paper Co., vice chairman, and Dr. H. K. Benson, University of Wash., secretary.

George G. Guild was announced as president of the reorganized Columbia Paper Products Co., of Portland, Ore., which added a second story extension to its building for a set-up department.

A. B. Svenska Handelsbanken and A. B. Kreuger & Toll merged in Sweden, to combine control of ten mills producing 450,000 long tons of pulp and paper. They were building an eleventh mill. The merged firms control 20 per cent of Swedish pulp exports.

10 YEARS AGO

With newsprint at $40 a ton, Chicago and New York delivery, Canadian newsprint mills "long" in tonnage were considering a plan to allocate some of their tonnage to the "short" mills in order to prevent price breaks. Some of the mills listed in the first group were Powell River, Pacific Mills, Mersey, Canadian International, Anglo-Canadian and E. B. Eddy. The "short" mills were those of several companies, including Consolidated, Abitibi and Price Bros.

Five oyster growers on Oakland Bay, Puget Sound, leased their oyster beds to the nearby Rainier Pulp & Paper Co., of Shelton, Wash., declaring this would permanently settle a long drawn out controversy over alleged effects of waste liquor on the oysters.

Bartlett Retires As Penn Salt Vice President

● The Pennsylvania Salt Manufacturing Company of Philadelphia has announced the retirement of North Emory Barlett as vice president. Mr. Bartlett, who is a native of Maryland, started with the salt company in 1894 as a lye salesman in the Chicago office.

PROPERTY OF THE SEATTLE PUBLIC LIBRARY

PURE-PAK'S POST WAR EXPANSION PROGRAM Will Be Important Factor in Paper Industry

POSTWAR expansion plans of the Pure-Pak Division of Ex-Cell-O Corp., Detroit, Mich., strongly indicate that in the very near future paper milk containers will become a most important factor in the North American pulp and paper industry.

Political barriers to the paper milk container, raised in many cases because of hocus-pocus dealings in some of our city governments to protect the glass bottle industry, are bound to eventually crumble.

Meanwhile, Pacific PULP & PAPER INDUSTRY has made inquiries direct to Pure-Pak Division of Ex-Cell-O Corp., and we find that their postwar plans call for a real show of confidence in the future of the paper milk container.

For one thing, this company is increasing as soon as possible its different models in milk containers from two kinds to six. Thus, they hope to take care of needs of all sizes of dairies, from the very small ones to the largest producers.

Before the war, Pure-Pak machines, of the universal quart, pint and half-pint type were produced in only two models. These were known as the "Senior" and "Junior." In addition, there were also available two machines that produced the half-gallon size package only and these two models were known as the "two-quart Junior" and "two-quart Senior."

By having only two models of the type that is universally used, that is, for the production of quarts, pints and half-pints, all on the same piece of automatic equipment, Ex-Cell-O Corp. was not in too good a position to take care of the requirements of very large dairies or the requirements of the thousands of rather small milk plants. The scope of their market was limited to, let us say, to medium size dairies only.

Four Point Program

● Now Ex-Cell-O Corp. proposes to entirely correct this situation in the postwar era in the following manner:

1. The prewar Junior and Senior machines have been redesigned and will have incorporated into them all of the things the company has learned over a period of years, through the actual operation of the prewar models in milk plants throughout the United States. They will be much more efficient mechanically, which will tend toward reduction in packaging costs through increased speeds and/or lowered maintenance cost and increased production efficiency.

2. They have designed a third unit, which is smaller than either the Senior or the Junior, which will be available for small milk plants throughout the country. This will materially increase the scope of their market and help to overcome the former complaint that paper milk bottle equipment was available to only medium and large size dairies.

3. They have also designed another Pure-Pak machine to meet the milk and dairy product packaging requirements of the larger milk plants in the nation. They fully expect that the speed and operating efficiency of this piece of equipment will be greater than anything ever before produced in the paper milk bottle packaging field and competitive with conventionally used glass milk bottle fillers.

4. The two-quart Junior and two-quart Senior machines will not be radically changed insofar as design is concerned, but will have improvements and refinements which have been developed as the result of operation in milk plants before and during the war.

The addition of this new equipment, then, will bring the total models available to six machines, ranging from the small to the very large units, which will permit packaging of liquid milk and other products in the following container sizes: Half-pints, third-quarts, 12 oz., pints, quarts and half-gallons.

Pacific Mills Report

● Net profit amounting to $731,282, after all charges including depreciation, depletion, amortization and taxes on income, was reported by Pacific Mills, Ltd., of Vancouver and Ocean Falls, B. C., for the year ended April 3, 1944, compared with a net profit of $869,427 for the previous year.

Sales of the company were considerably greater than in the preceding year, netting $10,269,297 in value, compared with $8,257,213 in the year ended April 30, 1943.

Sales for the past year increased 24 per cent, but included a substantial tonnage manufactured for the account of other Canadian newsprint mills under the direction of the newsprint administrator appointed by the Wartime Prices and Trade Board, and since the profit thereon is returnable to the federal government for distribution, provision therefore has been made in the accounts as a deduction from sales realization.

Increases in newsprint prices which became effective on March 1 and on September 1, 1943, also added substantially to the sales dollar volume, but the effect on net profit after deduction of taxes on income was negligible.

OME RECENT CROSS COUNTRY TRAVELERS IN CANADA, who had their pictures taken at "Director's House," Powell iver Co., Powell River, B. C.

eft to right: CHARLES VINING, of Montreal, President of the Newsprint Association of Canada, and MRS. VINING (on their irst western trip in several years); E. E. BARRETT, Vice President, G. F. Steele & Co., Inc., New York; the EDWARD BROOKS amily—daughter, father and mother—of Minneapolis (Mr. Brooks is a director of Powell River Co.); and DR. JOHN S. ATES, prominent Canadian woods technologist, representing Price & Pierce Co., Montreal.

Ladysmith Experimenters Try Out Different Lengths in Small Log Bundles

● Still seeking an ideal method for handling small logs for pulp mills — heretofore regarded as an uneconomical undertaking in the Far West big tree country—Comox Logging Co. has been experimenting with 8-foot, 40-foot and random length log shipments to Powell River Co.

This experiment in cutting and shipping of small trees that were formerly left on the Comox logging stands on Vancouver Island, is still proceeding on the principle of trial and error, more than one year after it was inaugurated.

Besides the experiments in log lengths mentioned above, another proposal, advanced by R. J. Filberg, vice president of Comox, calls for cutting the logs into 32-foot lengths, piling them as cants, as it is done at eastern pulp and paper mills, and hoisting them into trucks or scows by clam-shell hoists.

Shipping them in random lengths was found to be cumbersome and uneconomic. These lengths ranged from ten to 90 feet. It was found that in light stuff such as this (light for any western logger with tops averaging only six inches diameter), the limbs remained intact and had to be removed before loading and hauling. In most cases, too, it was found necessary to cut the logs into 50-foot lengths to facilitate trucking.

It was subsequently decided to remove the limbs and cut to length in the woods so as to save labor costs, for it was found to be excessively costly to wait until the loading stage had been reached. Under the later arrangement, trucks had to wait until the operation was completed and several men were usually idle while one or two men went to work on the limbs.

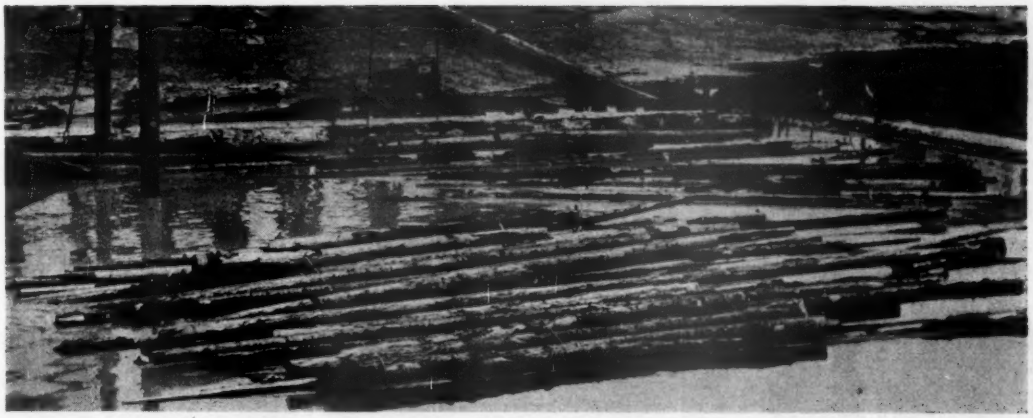
When the new setting was undertaken in June and July it was decided that all the limbs would be removed from the small logs while

HOW THE EIGHT-FOOT SMALL LOG BUNDLES are handled for Powell River Co.

Top view: Loading bundles on a truck and trailer at the Comox operations near Ladysmith, British Columbia.

Middle view: Dumping a load at the Ladysmith booming grounds.

Lower view: Moving log bundle to boom by A-frame. Note bundle in about center of picture, afloat.



SHOWING BUNDLES OF LOGS AT THE POWELL RIVER CO.'S LOG SLIP AT POWELL RIVER, B. C. ONE BUNDLE HAS BEEN BROKEN. THESE ARE IN LONG LENGTHS.

still in the woods and that everything would be cut to no more than 40-foot lengths. This preparation is expected to expedite handling of the logs on the conveyor loader developed for this purpose which has a theoretical capacity of five to six thousand feet per shift.

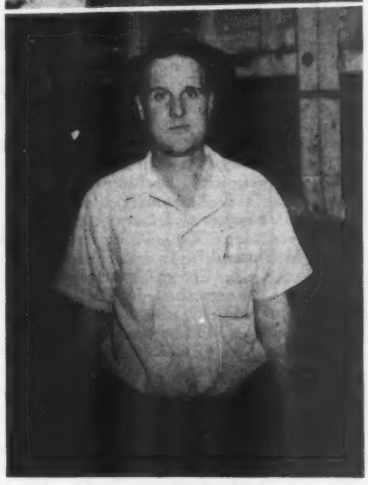
Cutting the logs into 8-foot lengths, as illustrated in the accompanying pictures, was undertaken as a sideline experiment to determine whether such lengths could be satisfactorily handled. Angus P. MacBean, provincial government forester, who has been supervising the experiment since its inception, states that it is obviously too costly to prepare these short lengths by hand, as was done for the experimental purposes here illustrated, but that such a setup might be justified through the installation of a small portable mill which would operate close to the road so that the eight-foot lengths could be loaded direct from mill to truck.

The 8-foot logs shown in the pictures were piled by hand in stacks representing one and a half to two cords each. Two ropes made of four twisted strands of No. 1 wire were used to bind the bundles together for loading by a 1¼yard gas electric shovel. A self-locking hook was recommended for clamping the ropes intact, although it was not used in the improvised rig on this particular occasion.

Loading of the 8-foot lengths by gas electric shovel was at the rate of 4,000 cubic feet of logs in six or seven hours, but the volume was limited by the number of trucks available, so that this figure is of little significance. A Hayes truck and a couple of smaller Mack trucks were used in this connection.

If the costs can be reduced through introduction of fully mechanical rather than manual handling, including the use of a small portable sawmill, it is considered likely that use of these short, standard size logs may really be more advantageous than the other methods, but the costs have not yet been fully worked out.

For previous reports on development in this experiment see Pacific PULP & PAPER INDUSTRY, August, 1944, page 36, and most other issues back to July, 1943.



Above: J. HOWARD JAMIESON, Superintendent, Sawmill Division, Powell River Co., Powell River, B. C. Below, BARNEY MACDONALD, Assistant Superintendent of the sawmill, Powell River Co.

Pulpwood Receipts Rise But Serious Problems Develop in South and West

● August receipts of domestically produced pulpwood in all regions of the United States amounted to 1,502,000 cords, the War Production Board reported. This record is about 17 per cent above the same month of both 1943 and 1942. Over-all recepits including imports, totalled 1,705,000 cords.

Shortages of trucks, tires and manpower were causing concern over inventories in the far west, however.

In the south, receipts of 704,000 cords in August were 23 per cent above July's total. However, three dangerous conditions have arisen in the south:

1. Southern producers may not be able to ship or haul pulpwood already cut if prolonged fall and winter rains occur before the wood is removed from the forest.
2. Men are needed at many mills to unload pulpwood in the mill yards, drive trucks, et cetera.
3. Many manpower hours are being wasted by the cutting of rotten, burnt or too-small trees.

Lieut. Jacoby a Father

Walter Jacoby, assistant technical supervisor, Crown Zellerbach Corp., reports his brother, Lieut. Bernard, on leave from the same department, recently became the father of a baby girl, Paula Jane, born in Helena, Mont. First Lieut. Jacoby's address: 0-1038018, 191st CML. Depot Co., APO 5764, care Postmaster, N. Y.

Trade Talk

of Those Who Sell Paper

AT THE HI-JINKS of PMMC in Southern California: (Left to right): LOUIS WANKA, Vice Chairman, S. G. Wilson & Co.; ANCIL A. ERNST, PMMC President, Everett Pulp & Paper Co.; G. A. MADIGAN, General Chairman, Johnson, Carvell & Murphy; LEE W. LAMBOY, Chairman of Door Prizes, West Coast Coverage Co.; FRANK P. PHILBROOK, Golf Chairman, Graham Paper Co.; GEORGE SKELBA, Entertainment Chairman, Dixie Vortex Co.; BILL O'MALLEY, Chairman, Christmas Funds, Hawley Pulp & Paper Co.; WILLARD F. J. TAYLOR, Graham Paper Co., and JACK LEISER, Paterson Parchment Paper Co., Christmas Funds Committee.

Hi-Jinks of Paper Mill Men's Club Is Big Success

● The 10th annual Hi-Jinks of the Paper Mill Men's Club of Southern California was held at the Riviera country club, Los Angeles, Sept. 29, when President Ancil A. Ernst and his officers and members were hosts to the wholesale paper and twine distributing trade. Some 350 members and guests enjoyed a day of sports, followed by dinner and entertainment.

The affair had its serious side too, for during the campaign to raise funds the club had in mind the sponsoring of some worthy charity which would receive the bulk of the recepits. Last year it was the Pacific Boys' Lodge at Girard. This year another organization will be chosen. Too, from the annual event comes funds for the PMMC Christmas fund for needy underprivileged children.

War bonds also were a featured part of the program and more than $1,000 in bonds was distributed during the evening. The afternoon was spent with golf and the annual softball contest.

To Jerry Madigan, general chairman went most of the praise for the event's success, although President Ernst was enthusiastic in his praise for the work of all committees. These included:

Louis F. Wanka, vice chairman; Al C. Hentschel, chairman, finance committee; Bill O'Malley, chairman, Christmas Funds, and his assistants, Jack Leiser and Williard Taylor: F. C. Van Amberg, chairman, program; George Skleba, chairman, entertainment; Neil B. Sinclair, reservations and invitations; Frank R. Philbrook, golf; G. S. Brenzel, sports and softball; Lee W. Lamboy, door prizes.

Official hosts, in addition to President Ernst were: G. A. Thiem, vice president; J. W. Genuit, secretary; Newbey A. Green, treasurer; past presidents ex-officio, George W. Weiman, 1928; A. C. Hentschel, 1939; Charles Spies, 1940; Lester E. Remmers, 1941; Paul R. Raab, 1942, and J. Dwight Tudor, 1943.

The following members of PMMC and the firms they represent were the general hosts:

The Adhesive Products Co., L. I. Ramsey; American Lace Paper Co., Lon A. Kippes; Angelus Paper & Excelsior Products Corp., F. C. Van Amberg; Atlantic Gummed Paper Corp., Robert Marquis; Benj. C. Betner Co. of Calif., Tom H. Morris; Boston Drinking Cup Co., H. O. Bishop; California Cotton Mills Co., Ben Bahnsen, Roland Wolf; California-Oregon Paper Mills, Fred R. Summers, J. M. McCord; Capital Envelope Co., George McNamara; Comfort Paper Corp., Grayson B. Wheeler, Merle M. Paup; Continental Bag Specialties Corp., I. A. Reiss;

Crown Willamette Paper Co., Lester E. Remmers, Newbey A. Green, A. W. Olson and Robt. Tily; Crunden Martin Mfg. Co., George A. Ward; Cupples Co., Charles Spies, E. J. La Vigne; John H. Davis Co., G. C. Pierson; Dixie Cup Co, George P. Hacker and George F. Skleba; The Dobeckmun Co., T. E. Bruffy and T. L. McDonough; Everett Pulp & Paper Co., A. A. Ernst; Fernstrom Paper Mills, F. O. Fernstrom, J. W. Genuit, J. E. Maurer, E. G. Swanberg, W. H. Chenoweth and Marshall Moss; Fibreboard Products Inc, Leon E. Grosjean, J. A. McDaniel and J. D. Tudor; The Flintkote Co., A. E. Carlson, M. C. Larsen, L. B. Miller and C. H. Johnston; Samuel F. Goldman, manufacturers agent.

Graham Paper Co., Frank P. Philbrook and Williard F. J. Taylor; Great Western Cordage, Inc., C. H. Allen; Harvey Paper Products Co., H. O. Bishop; Hawley Pulp & Paper Co., Wm. B. O'Malley; Inland Empire Paper Co., S. R. Whiting; Jobbers Specialty Co., H. T. Phillips; Johnson, Carvell & Murphy, Edw. M. Murphy, Russell F. Attridge, Al. C. Hentschel, Jerry Madigan, Phil Ossian and Clyde E. Wimer; Jones Brokerage Co., Chas. E. Jones and Roy Jones; Kimberly-Clark Corp., H. P. Westler; Lily Tulip Cup Corp., Paul R. Raab and Louis Levins; Longview Fibre Co., A. D. West; Los Angeles Paper Bag Co., G. S. Brenzel.

Menasha Products Co., B. E. Calhoon and Roy Gute; Milprint, Inc., Stan Coumbe; Milwaukee Lace Paper Co., G. A. Thiem; Minnesota Mining and Mfg. Co., H. R. Long; Morgan Paper Co., Elmer C. Thomas; Murphy and Buist, Gordon Murphy; National Card, Mat & Board Co., C. W. Crysler; National Paper Products Sales Co., Harry L. Fields; National Products Sales, Samuel E. Goldberg; Nekoosa-Edwards Paper Co., Marvin Vanderheiden; Northern Paper Mills, Irvin E. Damon; Oregon Pulp & Paper Co., L. H. White; Pacific Coast Paper Mills of Washington, S. G. Wilson and Louis Wanka, and Pacific Pulp & Paper Industry, Arthur W. Ponsford.

Pacific Waxed Paper Co., Chas L. Brouse; Palmer-Bingham Envelope Co., W. E. Bingham; Paper Cotnainer Mfg. Co., J. M. Sholl Lewis; Paper Manufacturers Co., Inc., Carl W. Draper; Paper Products & Supply Co., Russell J. Hosfeldt; Paper Supply Company, C. Cleve Bolyard, G. B. Carlton and C. R. Pritchard; Paterson Parchment Paper Co., Floyd D. Smith; Pioneer Wrapper Co., Jack Leiser; Pomona Paper Products, Inc., Paul R. May; Protecto Products Co., Inc., Louis Clark; R & R Paper Converting Co., R. J. Sterling; Rhinelander Paper Co., Edward N. Smith; Schermerhorn Bros. Co., R. E. Walsh, Leo L. Corder, E. J. Fillier and J. Berutti.

Searchlight Pacific, Ltd., Frederick R. Schroeder; Sherman Paper Products Corp. of Calif., A. Carter Flinn and J. C. "Cap" Fischer; Silklin Paper Corp., Wm. M. Daly and S. G. Gue; Sinclair-Lang Company, Neil B. Sinclair; Southland Paper Converting Co., S. G. Yount and Paul R. Halstead; Turner Halsey Co., Frank G. Moell; The Tuttle Press Co., Edward N. Smith; United States

Envelope Co., Louis T. Mork, Albert F. Duvall and Bill McBride; Universal Paper Products Co., Jim Garner; West Coast Coverage Co., Lee W. Lamboy; West Coast Paperboard Mills, Wm. H. Kewell; Western Manufacturing & Supply Co., Ross R. DEvean; Western Paper Converting Co., Lloyd Riches, and Western Waxed Paper Co., W. A. Voltz, G. C. Wieman and A. E. Kern.

Paperbox Company Headed By John V. Manners

● The Paper Box Corp., 63rd and Lowell Sts., Oakland, Calif., manufacturers of folding boxes, has been dissolved, and a new firm, Paperbox Company, at the same address under the sole ownership of John V. Manners, president of the former concern, has been formed.

Mr. Manners has also acquired the Acme Paper Box Co., 679 Third St., San Francisco, manufacturing set up boxes. This acquisition gives the Paperbox Company diversification of its products, and a large output.

More Boxes Can Be Sold

● Housewives now are permitted to buy empty paperboard boxes for use in frozen food lockers.

War Production Board Order L-239 has been amended making this possible. Heretofore retail sale of folding or set-up boxes for this purpose was banned.

Dr. Ritter Joins U. of Washington Research

● The Pulp Mills Research Project at the University has added an additional research chemist to its staff. Dr. David M. Ritter arrived September 1 to engage in research dealing with the chemistry of lignin, a part of the basic research in the program pertaining to the utilization and disposal of sulfite waste liquor.

Dr. Ritter, after receiving his doctor's degree at the University of Chicago, became a research chemist with the E. I. du Pont de Nemours & Co. in their Experimental Station at Wilmington, Del. In 1942-43 he was with the Office of Scientific Research and Development on war research. Upon termination of the war research, he returned to du Pont.

At the University of Chicago he held a special Carnegie Foundation fellowship. His field of research deals with colloids and organic synthesis, and these phases will be emphasized in the research project involving pulp mill effluent.

Fletcher Paper Co. Starts Health Insurance

● Tom O. Fletcher, vice-president of the Fletcher Paper Co., of Alpena, Mich., has announced adoption of a group insurance program by his company through which employes and dependents receive hospital and surgical benefits.

The plan is being underwritten by Metropolitan Life Insurance Co. Employees contribute fixed amounts and the employer bears the balance of net cost.

Under terms of the plan, non-occupational disability benefits of $4.50 a day will be paid to an employee when either he or a dependent for whom he is insured becomes hospitalized, while sums ranging, in the case of employees, up to $150, and up to $112.50 for dependents, will be paid for surgical operations, resulting from non-occupational causes. The plan also includes visiting nurse care.

J. HENRIK VOUGT, Purchasing Agent, Fernstrom Paper Mills, Pomona, Calif., made a tour of some of the pulp mills of Oregon and Washington in mid-September.

He said he was impressed with the quality of products despite the handicaps under which mills have operated. One of Mr. Vougt's "extra-curricular" duties at home nowadays is making frequent trips into Los Angeles to keep the critical supply of waste paper moving out to the Pomona plant.

R. S. Buckley on Northern Trip

● R. S. Buckley, chief chemist, Fernstrom Paper Mills, Pomona, Calif., was planning a visit to his old home town, Everett, Wash., and calls at some of the Northwest mills in October.

Rayonier Timber Dept. To Move to Olympia

● The Timber Department of Rayonier Incorporated, which in the past year has started several logging operations for the Grays Harbor and Port Angeles, Wash., divisions, will move into new offices in November in the AFL Joint Council Bldg., 215 Fifth Ave., Olympia, Wash.

Martin Deggeller, manager of the department and six foresters and engineers on his staff, as well as secretaries, will make their headquarters there. Thus, they will be closer to the logging operations on Olympic Peninsula, and in Grays and Willapa Harbor regions. Heretofore they have been in the Seattle Rayonier offices.

Service Pins for 289 Hoquiam Employes

● Service pins for five, ten and 15 years employment in Rayonier Incorporated were presented to 289 employes of the Rayonier pulp and paper mills of the Grays Harbor division at Hoquiam, Wash., on Sept. 7, 1944.

Greetings from Edward Bartsch, president of the company, wired from New York, were read to the guests. Morton B. Houston, vice president and western representative, came down from Seattle to attend the affair.

Crown-Z Woodsmen Inspect Alaska Timber

● Three Crown Zellerbach woodsmen —Axel Brandstrom, forester of Portland, Ore.; Charles Nichols, superintendent at Booth, Ore., and Larry Richen, timber cruiser, Portland—made a 14-day timber inspection trek in early September in the wilderness of Prince of Wales Island, Alaska, where the U. S. Forest Service is offering an allotment of timber for a pulp and paper industry.

They made the trip by boat from Ketchikan, with a skipper and assistant skipper going along. The wives of Mr. Brandstrom and Mr. Nichols also were in the party.

One of the guides killed a black bear and a deer and the party caught plenty of large salmon and trout.

Much of the time, however, was occupied with the work at hand of looking over the timber.

This was the third expedition to the area in the past two months by Crown Zellerbach officials. Previous trips were made by top officials of the company, including President J. D. Zellerbach, and were reported in our September issue.

These were described as purely exploratory trips, to look over the Forest Service offering to possible bidders of 14 million cords of hemlock in the Ketchikan area, as a perpetual wood supply for a mill, which would have to be built in the territory, under terms of the offer.

Camas Paper School Has Smaller Enrollment

● Wartime conditions had cut down somewhat this falls enrollment in Crown Willamette Paper School of Crown Zellerbach Corp., Camas, Wash. This will be the school's twelfth year, beginning on October 24. This is the only school of its kind in the world, and it enjoys a high reputation with educational institutions, as 16 hours of university credit in the four-year paper school are accepted toward a college degree by the University of Washington and by Oregon State College.

Because of the long working hours which are imposed upon employes during the present emergency, enrollment stands at a lower figure than it would otherwise attain.

Some changes will be noticed in the faculty of the Paper School under Dean A. G. Natwick, assistant resident manager of the mill. A few members of the faculty are serving in the armed forces, and one of the faculty advisors has left mill employment to go into business for himself.

Jonsson Knotter Screens Installed In Rayonier Mills

● Priorities have been granted covering some screen room changes, including the installation of Jonsson knotter screens, at the Port Angeles, Wash., Division of Rayonier Incorporated.

These changes are in line with the general policy of Rayonier Incorporated to install equipmenit which will result in savings of wood. Another advantage to be derived from this installation is an improvement in pulp cleanliness.

The Jonsson knotter screens are being supplied by the Bird Machine Compan South Walpole, Mass., and are similar to those recently ordered for the company's division at Fernadina, Florida.

Abstract of Benson-Anderson Paper On Colorimetric Determination of Sulphite Effluent

● At the meeting of the American Chemical Society, New York City, September 11-14, Dr. H. K. Benson of the University of Washington presented a paper in a symposium on industrial wastes. It dealt with "Colorimetric Determination of Sulphite Waste Liquor." A. A. Anderson of the Shell Oil Co., San Francisco, was joint author. An abstract of the paper follows:

"The quantitative estimation of the sulphite waste liquor in sea water is based on the formation of a highly tinctorial reddish brown nitroso lignin by the action of nitrous acid. The method has been used also for its detection and measurement in fresh water in mill analyses of the blow pit washing cycle. Nitrous acid, however, will react with cyclic compounds such as phenols, tannins and decomposition products of plant and animal life. In general, however, these interferences can be minimized by the preparation of suitable standards and correlation of data. To increase the sensitivity of the test and make it more generally applicable, the use of colorimeters was sought and a definite procedure for the development of color has been proposed.

"The study of color formation is discussed under two phases: primary and secondary. The former is based on acidic and the latter on basic conditions. Primary color was found to be a function of pH, time, temperature and concentration of sulphite waste liquor present.

"Secondary color is developed by making the solution basic with sodium carbonate at a pH slightly below 10. The resultant color is very stable, no fading was experienced in a three-day period.

"The recommended procedure is to add to a 50-ml. sample 1 ml. each of 20% (by volume) acetio acid and 5% (by weight) sodium nitrite. After ten minutes elapsed time add 2 ml. of 20% (by weight) sodium carbonate. After shaking the resulting sample may be compared with standards or analyzed with colorimeters."

Mr. Lundberg's article has developed wide interest in industry circles in both this country and Canada. Many inquiries have been made to this magazine as to whether the installments appearing in PACIFIC PULP & PAPER INDUSTRY will be published in book form.

In response to those inquiries, it may be stated that book form publication is contemplated, probably next year.

Wolmanized Lumber Used In Longview Pulp Mill

● In pulp mills, Wolmanized lumber has many uses. The Pulp Division of Weyerhaeuser Timber Co. at Longview, Wash., has been making extensive use of such treated lumber. Walk ways and railings around washers in the bleach plant, flow boxes, riffle partitions, decker vats, and head boxes to washers, have all been replaced with lumber immersed in Wolman salts.

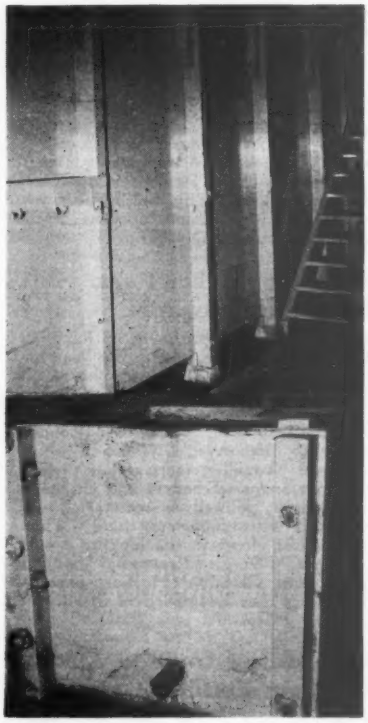
Although the American Lumber & Treating Co. feels each stick must be prefabricated and treated at the Wauna plant, Weyerhaeuser pulp division maintains a stock pile of lumber already treated and immerses any cut ends in a Wolman bath. The men know the lumber is more subject to decay after immersion than after pressure treatment, but they still feel enough is accomplished to make the home method pay.

Penetration of the Wolman salts appears to be complete up to two inches in width under pressure treatment, but timber stock exterior penetration on any side appears to be limited to ¾ of an inch.

In one place only has Donald G. Felthaus, plant engineer (mechanical) and G. L. Wolfe, master mechanic, found Wolmanized lumber not entirely satisfactory. This is in wood stave pipe. Such pipe must swell to stop the leaks. But lumber, so treated, does not swell sufficiently to accomplish this purpose. However, in tanks and flow boxes, where pressure can be exerted to take up or pull down, the lumber is highly satisfactory.

The lumber takes paint exceptionally well.

Lumber is treated for the Northwest area at Wauna Lumber Co., Wauna, Oregon.



Above: Head box and deckers shown in this picture are not an old installation at Weyerhaeuser Timber Co.'s Pulp Division mill in Longview, Wash., but they are doing excellently. Note how paint reflects flashlight gleam. Below: Tail-box of Wolmanized lumber at Weyerhaeuser Timber Co.'s mill, showing tightness of construction

Two Gaspesia Sulphite Co. Executives On Coast

● I. W. Prendergast, sulphite superintendent, and John Hardie, plant engineer, of Gaspesia Sulphite Co., Ltd., Chandler, Quebec, were touring Pacific Coast mills during late September and early October. Trips were arranged for them in Bellingham, Everett, Camas and West Linn mills.

Philip L. Bannan, Sr., Dies

Philip L. Bannan, Sr., President of Pacific Gear and Tool Works of San Francisco, and President of Western Gear Works, Lynwood and Vernon, California and Seattle, Washington, died in San Francisco Saturday, October 8th. Death followed a month's illness during which time he underwent an operation from which he never recovered. He was 72 years old.

He is survived by his widow, Teresa, six sons, Thomas J. and Charles F. of Seattle, Philip, Jr. and Berchman A. of Los Angeles, the Rev. Louis I. Bannan, S. J., of Alma, California, Bernard, an Army captain in Italy. Four daughters also survive, Patricia Bannan and Mrs. Margaret Abrahamsen, San Francisco; Mrs. Bernice Branson of Burlingame, California, and Mrs. Teresa Malley, Seattle.

The chapter he wrote in the industrial development of the Pacific Coast is prominent. A native of San Francisco, Mr. Bannan began his career when a boy, as an apprentice machinist in a San Francisco machine shop. He later became part owner and finally sole owner of the plant which still bears the name Pacific Gear and Tool Works. Until his recent illness he was active manager and astounded his friends by his energy and activity.

In 1929, in conjunction with his sons Tom, Phil, Berk and Charles, he took over ownership of the Western Gear Works of Seattle. In 1937 he established the Pacific Gear Works in Los Angeles, which plant has since become a part of Western Gear Works. In 1942 the large new Western Gear Works plant at Lynwood, California, was built. The combined operations of Western Gear Works and Pacific Gear and Tool Works form one of the largest gear manufacturing organizations in the United States and exemplify Philip Bannan's faith in the future of the West as an industrial empire.

Mr. Bannan was a member of the California National Guard from 1892 until 1901, when he was honorably discharged. He was a member of the board of directors of California Casualty Company, and of California Metal Trades. He was also a member of the Sierra Club, the Knights of Columbus and the Rotary Club.

Two Majors From Camas

Two men from the Central Technical Dept., Crown Zellerbach Corp., Camas, Wash., now are army majors. Maj. John S. Mears is in 883rd Sig. Co., Kelly Field, Texas, and Maj. Howard Graham, Ordnance Div., is at Hercules Radford plant, Radford, Va.

How British Columbia Industries Will Utilize More Wood

● In behalf of the entire British Columbia pulp and paper industry, L. K. Bickell, Chief Chemist, British Columbia Pulp & Paper Co., recently pointed out some ways in which the industry itself is making possible greater utilization of forest resources. He addressed the Sloan Commission, an official body investigating all British Columbia forest industries preparatory to framing of legislation.

Mr. Bickell predicted:

1. Hydraulic log barking and whole log chipping will make wood savings of 14 percent in British Columbia mills.
2. A chemical industry based on wood that possibly could even surpass financial returns now derived from pulp and paper.
3. Utilization of small logs now left on logging stands.
4. More extensive use of sawmill slabs and edgings.

But he also warned against lowering the quality of products and discrimination against pulp and paper in the grading and allocation of logs. The implication of his treatise was clearly that industry is going a long way in working out its problems in the public interest.

Some highlights of Mr. Bickell's report follow:

Hydraulic Log Barking

● "Recent developments in wood preparation, known as hydraulic barking and whole log chipping, offer such great advantages in wood saving that pulp mills in British Columbia will install these systems as soon as critical war materials become available. Two types of hydraulic log barkers are now in operation in pulp mills in the State of Washington, and from experience with these barkers savings of about 14 percent of wood should be realized over the existing wood preparation systems in British Columbia. The importance of this development in wood conservation can hardly be over-emphasized. It means that the same quantity of wood will produce some 14 percent more pulp or paper, through the sale of which the Province of British Columbia will benefit.

● "Heretofore, outside portions of the logs had been barked mainly by drum barkers, and where requirements of greater cleanliness were demanded, by rotating knife barkers of various designs. The pulp industry has realized that these methods are wasteful of good wood, since every saw cut means that much lost wood for pulp, and barkers remove a certain percentage of wood with the bark. However, over the years, individual pulp mills have been able to reduce these wood losses by various schemes, to the extent that the loss of sound wood in general now is about 16 percent, yet this with the bark and cull is all used for fuel purposes by the industry itself. . . .

Chemical Industry

● "The chemical utilization of wood, which infers the use of wood for the production of organic chemicals, has been receiving much notice. Actually, such utilization has been accomplished on a large scale for some time by the Cellulose Industries, when the cellulosic portion of wood is converted into various well-known cellulose compounds. Recently, attention has been drawn to the possibilities of the conversion of wood cellulose to sugars, with the immediate object in view of the production of ethyl alcohol therefrom. So far, chemical utilization has been centered around the cellulose fraction, no doubt because its chemistry is fairly well understood. The chemistry of lignin, which constitutes about 30 percent of the wood, is incompletely known, but when research on the complex lignin molecule finally determines its constitution, great impetus will be given to developments in its use for the production of other chemicals.

L. K. BICKELL, Chief Chemist, British Columbia Pulp & Paper Co.: "Confining our industry to a large amount of a poor quality of wood material would threaten its existence as an exporting industry."

"There is no doubt that a chemical industry, based on wood and akin to the coal-tar industry, will eventually evolve in conjunction with pulping which would increase the pulp industry in importance. It is conceivable that the values obtained from this chemical industry could surpass the returns now derived from pulp and paper production. . . .

Use of Waste Wood

● "In British Columbia the majority of the pulp and paper products manufactured are sold on the export market and have been predicated on the supply of medium to good grade raw material. The amount of products manufactured that use a low grade wood is limited.

"One of the conservation problems of the forest industries for which solution must be found is the utilization of waste incidental to present day logging methods. As is well known, experiments are now being carried out by the whole industry to determine the best ways of recovery, handling and utilization of the small logs from this waste with the object in view of an ultimate economic solution.

"In addition, the pulp and paper industry is now co-operating with sawmills in experiments to find an economic method of disposal of the sawmill slabs and edgings in the manufacture of pulp and paper products.

"Undoubtedly the utilization of inferior and waste wood by the pulp and paper industry will present technical problems, require additional processes, capital expenditure and an export market for products. The solution to these problems should be found in continued research by the pulp and paper industry and by research in Dominion or Provincial Forest Products Laboratories. But we must emphasize that to confine the present industry to a large amount of this class of material would threaten its existence as an exporting industry in competition with world developments.

Conclusions

● "As the pulp and paper industry of British Columbia looks into the immediate future it can forsee the installation of better barking methods with practically 100 percent of the wood made available for pulping; bark in a form suitable for the extraction of tannin and the bark residue for fuel or other purposes.

"It can foresee the complete economic utilization of the waste liquor from the sulphite industry.

"It can foresee the use of practically 100 percent of the log for products which will have high economic value.

"It can foresee the utilization of its fair percentage of the logging waste in the Province when logging and handling methods are devised, processes determined and as markets are found.

"On the reasonable assumption that the pulp and paper industry, as well as the other log consuming industries of the Province, will co-operate and assume its fair share of responsibility in connection with the utilization of logging waste, and having in mind the particular wood requirements of this important industry as described earlier in this brief, no discrimination should be made by log grading or allocation of logs, by which this industry would be placed at an economic disadvantage with respect to its normal supply of logs."

Pacific Coast Wage Increase Approval Is Nearer

● The status of negotiations between the International Brotherhood of Pulp Sulphite and Paper Mill Workers, the International Brotherhood of Papermakers and the Pacific Coast Association of Pulp and Paper Manufacturers, which was conducted in Portland June 7-9, has not yet been resolved by the 12th Regional War Labor Board.

The latest move has been the return of a questionnaire to all mills asking for additional informatiin before the application No. 12-6685 can be processed. The application calls for a 2½-cent hourly wage increase for night shift employes and an increase in vacations from one to two weeks for employes of five years' service.

The application should not require much time in processing because it now occupies a favorable position before the War Labor Board, having already been submitted and discussed and probably completely digested except for the additional information involved.

•

That government
is best
which governs
least.

—Thomas Jefferson

A good thought
passed along by

Kalamazoo Vegetable Parchment Co.
Parchment • Kalamazoo • Michigan

Economic Advantages of Accident Prevention

Deaths and injuries from industrial accidents are greater than those on the battlefields ✓ ✓ ✓ Safety jobs done in one month at a mill are listed ✓ ✓ ✓ Humanitarian reasons should justify improvements but some remarkable statistics also will impress cost accountants.

By LEO C. KELLEY*

General Superintendent,
British Columbia Pulp & Paper Co.

● In the year 1942, the last for which complete statistics are available, there were in British Columbia alone 65,475 accidents reported to the Workmen's Compensation Board (financed by employers), of which 212 proved fatal. There were 28,863 temporary total disability accidents. Almost $3,000,000 was paid out in compensation as a result of these 28,000 accidents, and the total cost of all accidents was almost $10,000,000.

In the same period in the United States there were 93,000 fatal accidents and 9,100,000 non-fatal injuries, causing a loss of 380,000,000 man days or, to put it another way, the equivalent of shutting down all business of all kinds—railroads, busses, factories, stores, everything industrial—in the United States for one whole week. The total cost of these accidents is the staggering figure of $2,300,000,000.

Kindly note that both in Canada and the United States the deaths and injuries from industrial accidents are much greater than those caused on the battlefield.

In spite of this general knowledge, many of us take the attitude that, after all, it is difficult for us to sell our employers safety on this direct dollar basis. I think we are quite justified in this attitude.

To give you a concrete example of this reasoning, may I refer you to a specific case in our Woodfibre, B. C., pulp mill. Our No. 1 pulp drying machine was made by the manufacturers with a type of clutch on the wire, 1st press and 2nd press drives that was improper. Without going into details, let us merely state that their working performance was such that stopping any of the three drives quickly enough in an emergency was questionable. Therefore a potential hazard existed, and if a workman caught his arm or the like in a roll and his mates could not stop the drive in time a serious accident might result. Over a period of years we spent hundreds of dollars on machine shop work, etc., trying to make the working of these clutches foolproof but to no avail. All three were removed and replaced this year with modern reduction units clutches, etc., that completely eliminate any possible hazard.

Now the point is that in 30 years of operation nobody was hurt on this machine. The cost of the replacement installation was greater in dollars and cents than our total annual assessment to the Workmen's Compensation Board. Management, certainly then, did not possibly justify this expenditure on a W.C.B. dollar assessment saving basis. I would like to read the list of safety jobs completed for the month of March alone at the same plant.

1. Loose planks between chipper room and sulphur burners repaired.
2. Hand railing placed on stairway above cookhouse.
3. Light installed at ladder from chip bins to conveyor belt.
4. Guard rail installed at main switch for digester power center.
5. Chip bin safety belts improved by addition of leg straps to prevent belt slipping up on the body.
6. Wooden catwalk in front of boilers No. 14 and 15 replaced by permanent iron work.
7. Wiring under hood in main laboratory renewed.
8. Hatch cover replaced between No. 5 blowpit and acid plant and foreman instructed to have hatches covered when work is completed.
9. Lighting for common rooms in bunkhouses checked and stronger globes installed where necessary.
10. Cleats installed on blowpit ladder.

*Paper given recently before British Columbia Industrial Safety Council in Vancouver, B. C.

LEO C. KELLEY, General Superintendent of the B. C. Pulp & Paper Co. mills: "Each of us can recall trivial accidents that indirectly caused costly production loss. On the other hand, profound effect of serious accidents on attitude of employes cannot be evaluated in dollars."

11. Guards installed along catwalk for reduction gear drive belts in machine room.
12. Light over No. 5 blowpit reconnected and extensions repaired.
13. Door leading to motor room of elevator in digester building replaced.
14. New cleats placed on ramp to car tracks at welding shop.
15. Walk adjacent to house no. 187 repaired.
16. Guard installed for squeeze roll drive, No. 2 machine.
17. Rubber pads attached to ladders on operating floor of bleach plant.
18. Planking between digester building and mill creek repaired.
19. Caustic soda barrel moved into boiler room to prevent hazard to children who could get at it.
20. Light installed over stairs at side of No. 15 boiler.
21. Tread on stairs repaired in pulpmill turbine room.
22. Ladder and roof ladder on no. 2 cookhouse repaired.

These are in addition to the three drives previously mentioned, but the dollar cost of the month's listed program without these was greater than our W.C.B. assessment.

Why These Expenses?

Why then did management approve such expenditures, when the cost accounting department could prove that it did not pay apparently in dollar dividends? The answer lies in two reasons. One is the humanitarian reason which we will touch upon later. The other is in the saving in indirect cost as opposed to direct costs.

It has been established by the National Safety Council, by the Committee on Safety Production of the American Engineering Council, by various insurance companies, etc., that the indirect cost of accident is on the average four times the direct cost.

Direct cost covers only compensation payments, first aid, medical and surgical expense, legal fees and overhead.

Indirect cost includes:

1. Cost of lost time of injured employee.

2. Cost of time lost by other employees who stop work:
   a. Out of curiosity.
   b. Out of sympathy.
   c. To assist injured employee.
   d. For other reasons.
3. Cost of time lost by foremen, supervisors, or other executives as follows:
   a. Assisting injured employee.
   b. Investigating the cause of the accident.
   c. Arranging for the injured employee's production to be continued by some other employee.
   d. Selecting, training, or breaking in a new employee to replace the injured employee.
   e. Preparing state accident reports, or attending hearings before state officials.
4. Cost of time spent on the case by first-aid attendant and hospital department staff, when not paid for by the insurance carrier.
5. Cost due to injury to the machine, tools, or other property or to the spoilage of material.
6. Incidental cost due to interference with production, failure to fill orders on time, loss of bonuses, payment of forfeits, and other similar causes.
7. Cost to employer under employee welfare and benefit systems.
8. Cost to employer in continuing the wages of the injured employee in full, after his return—even though the services of the employee (who is not yet fully recovered) may be for a time be worth only about half of their normal value.
9. Cost due to the loss of profit on the injured employee's productivity, and on idle machines.
10. Cost of subsequent injuries that occur in consequence of the excitement or weakened morale due to the original accident.
11. Overhead cost per injured employee—the expense of light, heat, rent, and other such items, which continues while the injured employee is a nonproducer.

The ration figure of 4 to 1 is definitely conservative, and the National Safety Council's reports and those of other accident analysis bodies are filled with examples proving this fact. Rather than burden you with detailed examples, I would refer you specifically to Heinrich "Industrial Accident Prevention," Page 49 to 72; and to "Accident Costs" by R. P. Blake, subject No. 4 of Industrial Safety Subjects by the U. S. Department of Labor; to the March 1944 Issue of PACIFIC PULP & PAPER INDUSTRY, Page 19; and to "Accidents Facts," 1943 Edition by the National Safety Council.

You will find the time spent on the study of the data there presented well worth your while, and will as a result be armed with a potent weapon to use if necessary to convert the cost accountant type of management to disciples of the safety movement.

A Spectacular Exanmple

● Specifically, may we mention, in order to bring indirect cost of accidents closer home, just one spectacular example cited. A quarryman startled by a slight accident inadvertently set off a premature quarry blast. The direct accident cost to the company was zero but $10,000 worth of machinery was destroyed. In our own plants here in British Columbia we are all familiar with like occurrences. Just reflect a moment and I am sure each of us can call to mind similar accidents, trivial as far as injury to the workmen was concerned, which indirectly caused production loss.

Earlier in this paper we referred to the humanitarian side of the arguments for safety. In contradistinction to other indirect costs, no proper dollar evaluation can be assigned to this very important effect of accident. Important as its affects both the employer and the employee who was hurt and in its effect on other employees and the kin of the injured person. If in a war plant for example an employee is horribly mutilated, there must of necessity be a profound effect on the working attitude of other employees on similar machines. We all realize that this is so, and while we cannot evaluate this in dollars to our employer we should use it in our effort to have him give us his whole-hearted cooperation in our safety expenditures.

The installation of the three drives in our machine room, mentioned previously, can be justified solely by the improved mental attitude of the machine crew towards operating the machine and towards management. When employees realize that management is vitally interested in their safe well-being a degree of cooperation is received in return that definitely pays dollar dividends in production.

In conclusion, it has been stated in these meetings many times that a safety supervisor may at times have to justify to management his existence from the cost accountants' viewpoint. Should this arise, it can be proven definitely from statistics available in accident research publications that the safe plant is the most productive plant dollar for dollar, and I would recommend to all of us that, just to be forearmed, from now on we deliberately analyze and have on record the total cost, direct and indirect, as closely as we can evaluate if of the next dozen or so accidents which occur at our plants. I am quite sure that not only will we astound our employer with the results but we will be equally astounded.

We should also have available for reference purposes a copy of "Industrial Accident Prevention" by Heinrich. This is published by the McGraw-Hill Book Company Inc., and is without doubt one of the finest reference text-books on safety any safety supervisor could desire.

I do not think safety supervisors should ever have to justify the carrying out of the gospel of safety soley from the mercenary angle of the cost accountant. Rather we should stress the humanitarian, but we should still be conversant with the fact that we can prove even by money statistics that safety pays.

J. D. Zellerbach and R. A. McDonald Receive 30 and 25-Year Pins

● J. D. Zellerbach, president, and R. A. McDonald, executive vice-president, of the Crown Zellerbach Corp., San Francisco, at a recent luncheon given by fellow officers of the corporation at the Stock Exchange Club, were presented with their 30 and 25 year service pins, respectively.

Louis Bloch, chairman of the board of directors of the corporation, was master of ceremonies. Mr. Zellerbach's pin was presented to him by his brother, H. L. Zellerbach, executive vice president of the Crown Zellerbach Corp., and president of the Zellerbach Paper Co. Mr. McDonald's pin was presented to him at the request of the chairman by Andrew Christ Jr., general manager of the Western Waxed Paper Co., division of the Crown Zellerbach Corp.

Five More Camas Men Killed or Missing

● Add to the list of former employes of Camas, Wash., division of Crown Zellerbach Corp., reported killed or missing in action:

Eugene R. Brundage, reported missing in France August 11, was for nine years a yard laborer; entered the army in June, 1941.

Curtis Barnett, fourth hand on No. 5 machine, entered the army in September, 1943, reported killed in Normandy in July.

Lawrence Koplin, son of C. F. Koplin, finishing room foreman, worked at mill during vacations and later employed in technical department, reported missing. Was a private first class.

Buryl Holmes, Marine Corps Reserve private, reported killed in the South Pacific area, worked in the paper mill.

John Howard, an extra laborer for not quite a year, a private in the marines, reported missing on Saipan, August 24.

New Longview Plant Goes Into Operation

● A new converting plant for Pacific Paperboard Co., Longview, Wash., went into partial operation in mid-September. This replaces the building at the plant site, destroyed by fire on July 3. A building closer to town, formerly occupied by the Montgomery Foundry Co., was purchased.

Since the fire Pacific Paperboard Co. temporarily took advantage of plant facilities offered by R. S. Wertheimer, vice president and general manager of Longview Fibre Co.

E. J. Hinde Joins National Lead Co.

● E. J. Hinde, for the past eight years a mechanical engineer with the Longview, Wash., mill of the pulp division, Weyerhaeuser Timber Co., is now plant engineer of the Oakland plant, 4701 San Leandro Blvd., of the National Lead Co.

BEAR BRAND

CHEMICALS FOR THE WESTERN PAPER INDUSTRY

Ammonia
Caustic Soda
Zinc Hydrosulphite
Chlorine
Sulphur Dioxide

GREAT WESTERN DIVISION
THE DOW CHEMICAL COMPANY

Seattle SAN FRANCISCO, CALIFORNIA Los Angeles

GREAT WESTERN DIVISION • BEAR BRAND PRODUCTS • THE DOW CHEMICAL COMPANY •

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

Nurseries for Working Mothers' Children Prove Their Worth

By VERA WHITNEY BERNEY
Women's Personnel Supervisor,
Crown Zellerbach Corporation, Camas, Wash.

IN these days, when many mothers must work, or are being urged to accept employment outside the home, the care of the children becomes a matter of paramount importance.

Industry needs the services of these women, and therefore has no inclinaton to reject them when they present themselves for work, but those of us who are responsible for the details of their hiring can urge that some suitable arrangement for the care of their children be made before the mothers can actually go to the job.

The Day Care Nursery for the children of working mothers has proved to be one solution for this problem. Many larger industrial centers have developed their nurseries into institutions providing 24-hout care, but for a compartively small community, our day nursery is providing needed care for children between the ages of two and six years, from the hours of 6:45 A.M. until 6:30 P.M. This allows the mother who has to be at work by seven o'clock sufficient time to leave her child and still make her shift; and it permits the mother who works late in the afternoon to get her shopping done before she calls for her child.

VERA WHITNEY BERNEY, Women's Personnel Supervisor at the Camas mill and author of this article, also is Chairman of the Child Care Committee of the Camas, Wash., Civilian Defense Council.

EIGHT REASONS why all Camas praises its day nursery as a big success. The Lanham act provided a fund for salaries of attendants. The school system administers the fund. The Crown Zellerbach Corporation provided housing and equipment for this nursery, which takes care of an average of 40 children each day. Parents, who must be employed full time in the mill, shipyards, schools, stores or other work, pay a small fee for food.

As is the case in any community where the services of a nursery are needed, housing is a problem. We finally found a location for our project in the Sunday school rooms of one of the local churches. Our company pays the rental fee and has furnished some of the equipment. Money for operation expenses is procured from funds made available by the Lanham Act, under the direction of the Federal Works Agency, and jointly administered by the local school system and the Civilian Defense Council.

The day nursery does not accommodate mothers who are shift workers as much as we wish, but it does serve those who have day jobs and thereby eases the general womanpower situation in our locality. Patrons of the nursery are women who are employed in a wide variety of establishments, the mill, both plant and office, the nearby shipyards, the laundry, telephone office, and local mercantile establishments.

The operation of child care projects is an extremely worthwhile effort these days when, aside from boys of pre-draft age, the only labor supply from which current shortages can possibly be filled is that of women. However, it seems to me, the greatest advantage of a nursery is the care actually received by the children themselves. Many mothers would work even if there were no nursery provided, and would risk some uncertain provision for their children.

Health Examinations

● In the nursery set-up, the health of the child is always given paramount consideration. Every child is given an examination by the local health inspection. Sanitary practices with regard to drinking fountains, the washing of dishes, and care of clothing are observed.

Particular attention is given to well-balanced and nutritious food. Mid-morning and mid-afternoon lunches of graham crackers, milk, or fruit juices are served. These please the children greatly as is evidenced by the remark of one little tot, "I like nursery school because we have two parties every day."

The Camas community was one of the first in the nation to take advantage of the Lanham Act, providing federal funds to help in caring for little children of women in industry. The Crown Zellerbach Corporation assisted in this enterprise. In this article, Mrs. Berney tells how the town and company look back with great satisfaction on more than a year's successful operation of the Camas day nursery.

The noon meal is hot and substantial. These youngsters are taught to eat what is provided and learn to like the foods which are nourishing. Many a youngster who has been considered a "finicky" eater at home now passes his plate for hearty second-helpings and is steadily gaining weight.

The nicest feature of nursery care

(Continued on page 43)

is the consideration and attention which our supervisors shower upon the children, attention which sometimes a busy mother neglects to give. As a result, the children are happy in their situation and become attached to their teachers. The other afternoon I was there when parents waited for their little girl while she ran back into the building to tell her supervisor good-bye once more. More than once, little youngsters, who are being kept home on mother's day off, have slipped away to go to the nursery to hear the stories or play with the other children and one mother told me of her little boy who always incuded the name of his supervisor in his nightly prayer.

Sometimes we, who have the responsibility of setting such projects in motion, feel that the effort is great and results few, but, in the instance of the nursery school, this is not the case. When I go there and see little youngsters playing in clean surroundings, when I see their play being happily guided, and hear them, with folded hands, sing their little prayer song at meal time, I think how fortunate are these little ones, whom government and industry have not overlooked in these days of many pressures.

Some Views on Post-War Planning

By LAMMOT du PONT*

TO my mind, industry, and that includes every man of intelligence and energy, will face during the peace that will follow the conclusion of the war a responsibility, yes a duty, as great if not greater than the task it assumed and is successfully discharging of truly making this nation "an arsenal of democracy." Insuperable though that task was considered to be, the work ahead calls for at least an equally titanic effort. The size and complexity of the job clearly indicate the need of work by all—not the government alone.

What must be appreciated is that industry again must engineer an epoch-making swing, this time back to peace, and just as promptly, just as completely, as it has gone all out for war. Such transition is vital if there is not to be a hiatus bringing unemployment, unhappiness and, not only improbably, but certainly not justifiably, demands for regimentation and changes in our free enterprise system.

Although the nation will have the greatest productive capacity in its history when peace comes, it will be no simple matter to transform all of our swords into plowshares. We in the chemical industry may be somewhat more fortunate in this respect than some of the other industries. Many chemicals and chemical products now going to war will find peacetime uses just as soon as the war is over.

More than a year ago, a group was set up in our development department to consider the post-war problems, including the reemployment of former employes now in the armed forces.

A rather exhaustive survey was made by this group to determine, among other things, what new products the company would have ready for immediate exploitation in the post-war period, what existing products might find increased outlets, and the prospective post-war increase in annual sales volume.

An estimate was also made of the employment that might be provided by the prospective post-war increase in volume of business. Finally, specific recommendations were made for the guidance of the several operating departments.

For example, it was recommended that each operating department (1) prepare definite plans to be followed on cancellation of government orders; (2) prepare definite plans for converting quickly to normal peacetime products; (3) plan in advance the rate of production required for all products to supply the current demand and rebuild inventories; (4) make plans, to the design stage, for new plants, either for expansion or for the manufacture of new products; (5) make advance marketing studies and plans, estimates of requirements, etc; (6) study each item produced to determine if changes during the war period have developed new uses for it, or eliminated its use in any product; (7) consider the use of raw materials, now being used for war products, which will be available in excess quantities after the war, for the manufacture of new products, or to replace more expensive raw materials hitherto used; and (8) estimate the number of employes required for post-war production, and have definite rehiring plans ready to execute.

The report of our post-war planning group, including the recommendations outlined above and a number of others equally important, was adopted by the company's executive committee, with the request that the various operating departments make frequent periodic reports on the progress being made in the study of their particular problems. In the meantime, our special post-war planning group is continuing its study of the broader, over-all company aspects of plans for the post-war era.

All-Time High Predicted

● I might add that the survey made by our post-war planning group indicates that the NEW PROJECTS WHICH DU PONT WILL BE READY TO LAUNCH WHEN THE WAR IS OVER, TOGETHER WITH INCREASED OUTLETS FOR EXISTING PRODUCTS, ARE EXPECTED TO GIVE RISE TO AN ALL-TIME HIGH IN PEACETIME EMPLOYMENT. Such a result, of course, assumes that the country will have a sound economic system, that there will be no seriously abnormal man-made business conditions or other difficulties which cannot be foreseen now.

Under the private enterprise system, one must do the planning for one's self. By this I mean the individual must plan for the individual, the little company for the little company, the corporation for the corporation. Each and every entity must plan for itself. It cannot leave its planning to others. Enforcement of a plan upon someone else is dictation, and dictation never is acceptable to anyone.

Meetings of committees and regional and national conferences serve a useful purpose. They give incentive. But when problems are actually tackled, each company or corporation must consider its own needs and work out each solution, not selfishly but with consideration of the greatest good for the greatest number, with

*Chairman of the Board, E. I. du Pont de Nemours & Co., Inc. Partial text of address delivered before the Manufacturing Chemists' Association, New York, June 3, 1943.

fair profits for the manufacturer as well as fair wages to the worker and fair prices to the consumer.

Government, its policies and its procedures, always is a dominating factor. Necessarily, the nation plans for the nation. This is statesmanship. I would says its purpose always should be to increase and develop the productivity of the nation as a whole so that there will be constantly more and more goods for all the people to enjoy. Regulations which have that effect are entirely proper and, indeed, helpful. But regulations which have the effect of reducing total production by destroying incentive, hampering initiative, tying up productive activity in red tape, are a form of regimentation which the Amercan people must reject, if they are to preserve and continue the kind of enterprise which has made this nation great and enabled its people to enjoy the greatest abundance of any nation on the earth.

I would be the last man to suggest that free enterprise should be left so free that it would be subject only to the law of the jungle and the survival of the strongest. But it should free for the development of all the initiative and incentive that can be coaxed out of every individual, whatever his station in life. It should be free for the encouragement of every man with savings to put those savings to work in a productive way toward the greater development of the country. And to that end saving on the part of every individual should be encouraged. It should be free for the development of every scientific idea, for from the test tubes of science come great imporvements in living standards. It is out of these same test tubes that the major improvements of the future give promise.

I heard it argued that $50,000 spent in certain research projects has done more for the permanent improvement of agriculture than all the hundreds of millions that have been expended for agricultural relief. I do not wish to imply that many of the expenditures in behalf of agriculture should not have been made. But I do mean that much of the money so spent might have been more wisely used and of greater value to agriculture had more of it been spent on research to find new uses for agricultural products.

Government Plans

● It is important that the kind of government planning we are to face shall be clearly defined now. The planning of industry for its part of the task—employment, production, distribution, development—will necessarily be dependent on the kind of government planning that exists in respect to industry.

One way government can assist greatly is for it to practice economy and efficiency in its own affairs, thus keeping the burden of taxation at a minimum, and goodness knows taxes are going to be extraordinarily heavy under any circumstances. Any broad pattern into which the detail of government action will be fitted should include, first of all, sound money backed by a government that keeps its own financial house in order and that encourages people to save by assuring them that the dollar they save in the first post-war year will be the same dollar years hence.

It can be done by a policy of fairness in dealings with industry of all kinds—a policy based on interdependence of industry and public, rather than one designed to stir up discord from any selfish political motive.

It can contribute much by scrupulous honesty and integrity in the performance of its own obligations. It can provide valuable incentives by avoiding retroactive laws either in respect to taxation or other matters. It can keep statutes simple, clear and explicit, so that an army of lawyers on the part of both business and government is not necessary in order to bring about compliance and to eliminate confusion and uncertainty.

It can avoid using its vast powers in competition with the people instead of in collaboration with them. It can avoid laws and regulations which are unnecessary and serve no useful purpose except to put tax-eaters on the government rolls for the purpose of enforcing them.

International Affairs

There are certain broad objectives in the international planning which seem to me so self-evident that they should not be the subjects of contradiction or debate.

First, and most important, the relationships which emerge from this war should be such as to carry, so far as humanly possible, the assurance of enduring peace.

Second, they should be such as to permit widespread world trade and opportunity for the various peoples of the world to develop along lines of their own choosing.

Third, they should be such as to assure a maintenance and an increase in the high standard of living to which Americans look forward, and to avoid the throwing on this country of depressing burdens which can only encourage unrest, stagnation, and failure to reach our own high destiny.

Except in the case of enemy nations, it seems to me basic and fundamental that we must not expect other countries to do what we ourselves are unwilling to do, such as reduction of armament, removal of trade restrictions, change in form of government or laws. We should neither ask, accept, nor give any special privilege or territorial domination. Any world or national policing that is necessary should be paid for, at least in considerable part, by the peoples it is necessary to police.

Finances should be organized on a sound basis and rehabilitation loans made with an assurance of repayment satisfactory to our people.

Since science knows no boundaries, there should be no handicaps to the unrestricted transfer of knowledge and methods.

In a post-war world founded on such principles, I have no doubt of America's ability to hold its own and prosper while it points the way to the world, as it surely will, in development for the future.

John Koester Tours Mills With Leonard McMaster

● John Koester, secretary of Orr Felt & Blanket Co., Piqua, Ohio, makers of machine felts, toured the three Pacific Coast states and British Columbia in September. It was his second western trip for his company.

Leonard McMaster, Pacific Building, Portland, Ore., accompanied Mr. Koester on his trips to the mills.

Joins Sprout Waldron

● J. D. Brown has resigned from Canadian International Paper Co., where he held the position of groundwood superintendent of the Three Rivers Division, to take over the work of chief engineer of the Pulp & Paper Division, for Sprout Waldron & Co., Muncy, Pa., manufacturers of refining equipment for the pulp and paper and allied industries.

Worthington Names Camp Consulting Engineer

● Wortington Pump and Machinery Corporation, Harrison, N. J., announces that C. W. Camp, formerly with Crocker-Wheeler Electric Manufacturing Company for 38 years, specializing in application engineering, is now associated with Worthington as Consulting Electrical Engineer. He succeeds the late Harry Wood.

PAREZ*

for Papers that can "TAKE IT"

The trade-mark PAREZ has been chosen to designate all synthetic resins offered to the Paper Industry by the American Cyanamid & Chemical Corporation. This family of products includes our well-known wet strength resin derived from melamine. This same resin is now known as PAREZ 607.

PAREZ Is New Name for Cyanamid's Well-Known Wet Strength Paper Resins

Bringing lasting wet strength qualities to paper has proven to be one of Cyanamid's most important and timely contributions to wartime industrial development. The "secret" ...a special type of resin bonds paper pulp fibers together in such a way that they resist separation when exposed to water on aqueous material.

Most of the developments in the use of PAREZ have been accelerated and absorbed by military considerations. These many and varied war-proven uses will, with peace, serve as the basis for the development of new paper product applications for civilian goods in which wet strength qualities will provide sales appeal advantages. Listed here are some of the applications for wet strength qualities in paper:

- Grocery and Shopping Bags
- Multiwall Shipping Bags for Heavy Duty
- Cartons and Carton Liners
- Liners for Crates and Barrels (plain and laminated)
- Moist-Product Containers (frozen foods, potatoes)
- Shipping Labels and Tags
- "Wet-Scuff" Resistant Boxes and Bags
- Maps and Blueprint Papers
- Photographs
- Direct Process Prints
- Towels, Facial Tissues and Handkerchiefs
- Hanging Papers
- Twisting Papers
- Inner & outer plies only of paper board for use under moist conditions
- Papers for dry use where maximum fold is required
- Thin papers where good sizing is difficult
- Wipers replacing rags
- Outdoor Advertising
- Papers exhibiting minimum dimensional change with humidity variations.

Waxes • Rosin Size • Synthetic Resins • Casein • Alum • Corn Starch • Sulphonated Oils • Fillers • Defoamers • Soda Ash • Caustic Soda • Salt Cake • Acids • Clays • Satin White • Wetting Agents • Calmicro (Calcium Carbonate) and other Paper Chemicals

American Cyanamid & Chemical Corporation

(A Unit of American Cyanamid Company)

30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.

DISTRICT OFFICES: Boston, Massachusetts; Philadelphia, Pennsylvania; Baltimore, Maryland; Charlotte, North Carolina; Cleveland, Ohio; Chicago, Illinois; Kalamazoo, Michigan; Detroit, Michigan; St. Louis, Mo.; Azusa, Cal.; Seattle, Wash. • In Canada: Dillons Chemical Company, Ltd., Montreal and Toronto

HOW MUCH IS A CORD OF PULPWOOD
A Study of Pulpwood Conversion Factors

By J. ELTON LODEWICK, Ph. D.
Pacific Northwest Forest and Range Experiment Station,
Portland, Ore.

Editor's Note: This is a revision and condensation of an article appearing under the same title in this magazine in September, 1935.

● The Pacific Northwest pulpwood industry has always obtained its wood supply chiefly in log form, a practice linked to original dependence upon an open log market, to the large size of the timber, and to the composition of the timber stands. In this respect, it differs from the industry in the Northwest, South, and Lake States where the small-sized timber lends itself to conversion and measurement in the form of cordwood.

The open log market is a pecularity of the Pacific Northwest. It originated from the system of independent loggers, i. e., men or companies who purchase timberland and sell the logs produced therefrom to log users on a competitive basis.

In addition to logs purchased from independent loggers, the pulp companies may own timberlands from which logs are harvested by themselves or by loggers working under contract. The pulp species frequently grow in mixture with others more suitable for and valuable to the lumber industry. All species are logged together; segregation into lumber logs and pulp logs is made at the log dump or the booming ground, based upon species, log quality, and relative conversion values.

Because the major source of raw material was logs, and usually of such size that they could not be fed directly into chippers or grinders, break-down plants were established by most Northwest pulp companies. In general, these consisted of sawmills in which the logs were canted into sizes suitable for the chippers and grinders. High-quality material encountered during the break-down might or might not be diverted to the lumber market depending upon relative price and demand.

Many mills were equipped to handle wood in cordwood form. They used either wood produced by farmers and cordwood contractors or slabs, edgings, and other waste wood from sawmills. At one time, when there was a shortage of pulp logs, even the mills equipped to handle cordwood purchased a major portion of their wood in the form of screened chips produced at sawmills from the waste resulting from lumber manufacture. The most recent trend is toward the installation of hydraulic barkers accompanied by chippers large enough to handle a whole log at a time.

In general, the enormous pulp industry of Oregon and Washington has been dependent upon logs for its wood supply. Only in depression periods or at times of log shortage has it used cordwood and mill waste in any appreciable quantity. It is believed, however, that efficient utilization of second-growth timber stands, of bodies of timber at higher elevations where the average tree is smaller, and of the smaller trees now left on logging operations because they cannot be economically handled with present heavy equipment should and will necessitate harvesting in the form of cordwood. Consequently, it was deemed timely to determine the relationship between cords, log measure, and cubic contents expressed in solid usable wood, and to establish factors for converting tree volume and log scale into cords and cords into cubic feet. From time to time the transfer of logs upon a cubic-foot rather than a log-scale basis has been proposed. Such a change in practice would, of necessity, be based in part upon cubic foot-log scale relationships to a knowledge of which this study makes an important contribution.

The data presented herein were obtained from pulpwood operations on three tracts in the Cascade Range near Scio, Ore., where old-growth western hemlock and lowland white fir were studied. The trees ranged from 100 to 210 years of age with the majority falling between 145 and 155 years. The pulpwood species were being removed prior to the logging of the lumber species. Data on second-growth western hemlock and Sitka spruce were obtained from a 60- to 100-year-old stand in the coastal region near Aberdeen, Wash.

Solid Wood Contents of Stacked Cords

● Information on the solid wood contents of cords of stacked wood in the Pacific Northwest is scarce. Because of the practice of splitting practically every bolt, the applicability of measurements made on round timber in other parts of the country might be questioned.

During the course of the investigation, opportunity was afforded for measuring the solid contents of 137 cords of peeled old-growth western hemlock and lowland white fir near Scio, Ore., and 20 cords of peeled second-growth western hemlock and Sitka spruce near Aberdeen, Wash.

J. ELTON LODEWICK, of U. S. Forest Service, author of this article on a timely subject. This is because of efforts to salvage small wood in the West.

Method of Measurement

● The solid contents were measured according to the scheme used in earlier studies of Douglas-fir cordwood. Each stick was classified as to shape in cross section, and the dimensions necessary to determine its end area measured to the nearest one-quarter inch. The cross sectional shapes recognized were rectangles, trapezoids, triangles, sectors, semi-circles, and circles. Odd shapes were arbitrarily divided into and measured as two or more of the above shapes. When this was necessary, a record was kept of the number of extra pieces so made in order that the original number of pieces in the rick could be ascertained. The general appearance of the material measured may be seen in Figures 1 to 4. To facilitate computations, a table was made for each shape containing areas for the range of sizes encountered. The end areas of the sticks in each rick were read from the tables and totaled, and the cubic feet of solid wood computed.

Measurements were made on only one side of each rick under the assumption that taper, if present, would be taken care of by so piling that the top of the rick was level. In order to test the accuracy of this assumption, sixteen cords were measured on both sides. The area of the larger side exceeded that of the smaller size by from 0.7 to 5.1 per cent, average 2.1 per cent. The agreement is sufficient to justify measurement of only one side of each rick.

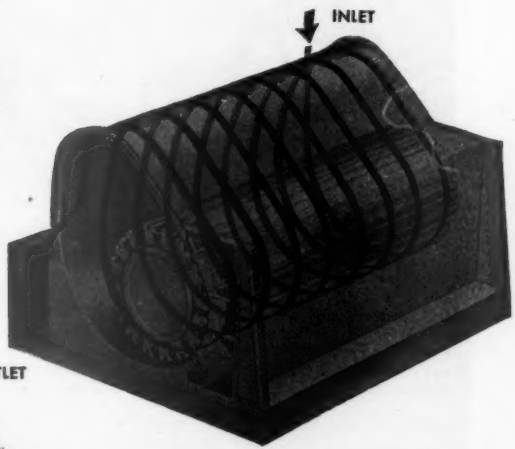
The "cords" as piled in the woods were different on the two areas studied, and in both cases exceeded a standard cord. At Scio the cutters were paid on the basis of a "cord" of four-foot sticks piled eight feet long and fifty-two inches high, and which is hereafter referred to as a commercial cord. At Aberdeen, cutters were paid on the basis of a "cord" of 52-inch sticks piled 8 feet 4 inches long and 52 inches high. Since this was known locally as a unit, it will be so referred to through-

The ROLL-O-FINER

Positive fibre treatment by a continuous recycling of stock. Positive control of roll pressure. Handles free stock at high consistency. Production rate determined by treatment required. Basalt Lava stone treatment ideal for high strength development, without cutting. Suitable for treatment of fibre for insulating board stock. Especially adapted for treatment of screenings. Designed to prevent stock submergence, with resultant low power consumption. Bedplate accessibility. Furnished in single or multiple roll construction. Compact, rugged construction. Sizes of refiner roll: 48 inches diameter x 96 inches wide.

Pacific Coast Representative:
A. H. LUNDBERG,
Textile Tower,
SEATTLE, WASH.

PIA INC.

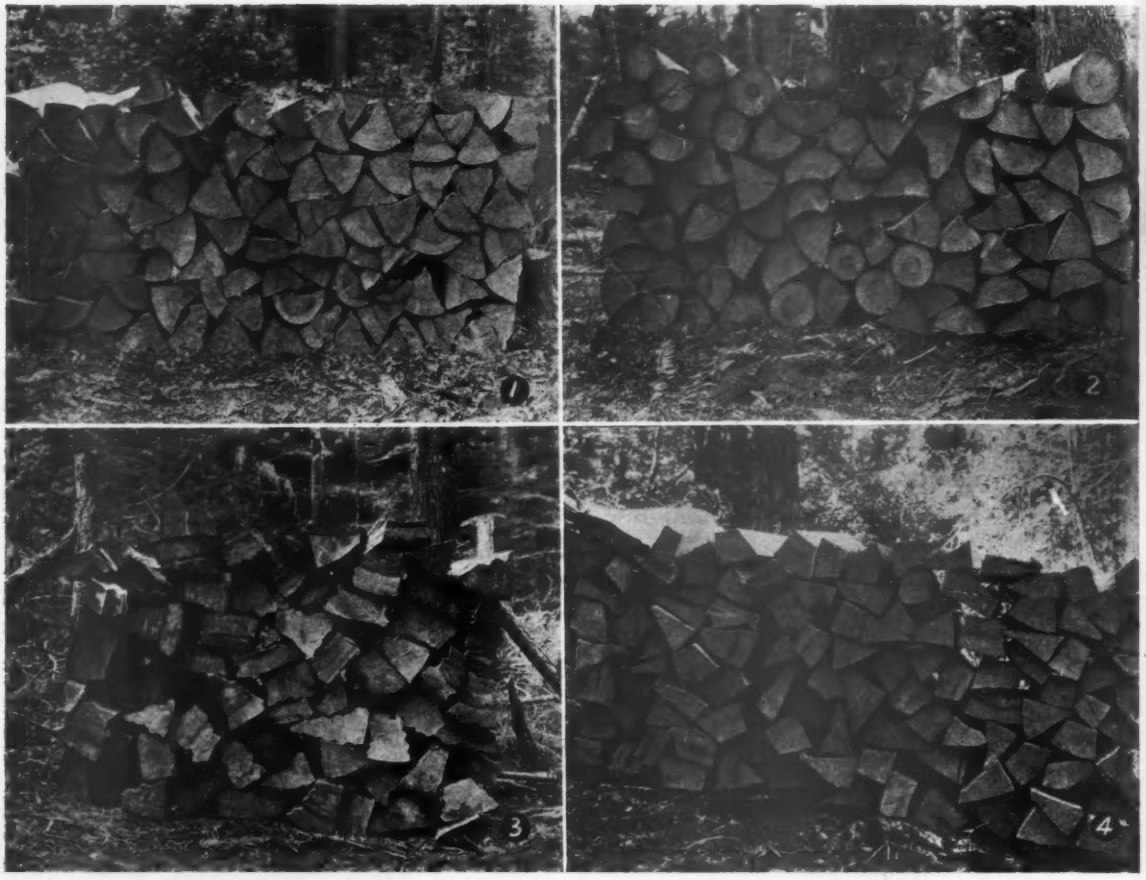


Patents Pending

CONTINUOUS, HIGH DENSITY BEATING

Diagram of spiral travel of stock from feed to outlet. Stock cycles around the roll a number of times while it is traveling length of roll.

PAPER and INDUSTRIAL APPLIANCES
Incorporated
122 East 42nd Street, New York, N. Y.



GENERAL APPEARANCE OF KINDS OF CORDWOOD MEASURED BY FOREST SERVICE:
Figure 1—An exceptionally well-piled rick of lowland white fir pulpwood from near the base of a medium-sized tree. Note the preponderance of sticks approaching a sector in cross-section.
Figure 2—Lowland white fir pulpwood from near the top of a medium-sized tree. Note the proportion of circular and semicircular sticks.
Figure 3—Western hemlock pulpwood from base of a large tree. Note the irregularity resulting from the gnarly butt section.
Figure 4—Western hemlock pulpwood from central portion of a large tree. Note triangular and trapezoidal cross-sections. This rick has more voids than the average.

out this report.

Commercial cords and units were converted to standard cords by means of the following relation:

$$\text{Solid Wood in Standard Cord} = \text{Solid Wood in Commercial Cord (or Unit)} \times \frac{128}{\text{Gross Volume of Commercial Cord (or Unit)}}$$

This method assumes that the ricks as measured are as closely stacked as they will be when laid down at the pulp mill for measurement. Since the cutters are paid on the basis of cords or units 52 inches in height, and the mills buy on the basis of 48 inches, the contractor obtains a theoretical overrun of 4 inches on each 52, or approximately 7.7 per cent. The contractors with whom this was discussed questioned the soundness of these assumptions, claiming that they obtained no such overrun, principally because the wood was piled more closely at the mill than in the woods.

To test the validity of the assumption, 28 cords have since been measured in the yard of a mill. These contained, on the average, 86.10 (S. D. plus-minus 4.25) cubic feet of solid wood. The close agreement between this average and that previously computed for all the material measured (85.91 cu ft.) served to support the procedure used for reducing commercial cords and units to standard cords.

The reasons for failure on the part of most contractors to obtain the theoretical overrun may be explained in one of two ways. A small "shinkage," as the contractor designates it, may result from the failure of some cutters to stack as closely as they might (compare Figures 1 and 4). This source of shrinkage can be eliminated entirely through adequate supervision and adoption of a policy of pay reduction for short ricks. The second source of shrinkage, and undoubtedly the most important, is the sticks left in the woods. In many cases sticks are discarded because they are too small, because they contain rot, or because they show unusually large knots. In other cases portions of ricks, or even entire ricks, are missed. This shrinkage may be reduced by adequate supervision.

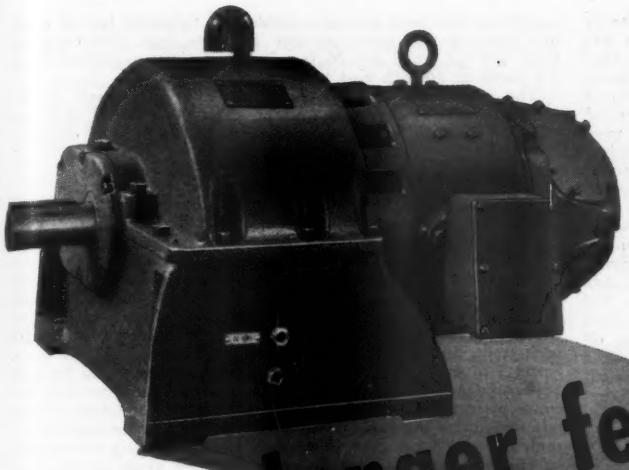
Solid Wood Contents of Standard Cords

● The commercial cords in the Scio sample averaged 93.67 cubic feet of solid wood per cord, while the average unit at Aberdeen contained 104.37 cubic feet. These are equivalent to 86.55 (S. D. plus-minues 8.57) and 85.37 (S. D. plus-minus 5.53) cubic feet per standard cord, respectively. The difference between the average is not significant.

Previously reported measurements of old-growth Douglas-fir fuelwood showed a solid contents of 84.49 (S. D. plus-minus 5.17) cubic feet per standard cord, on 16 cords of cottonwood pulpwood an average of 85.85 (S. D. plus-minus 3.90) cubic feet, and on 6 cords of second-growth Douglas-fir fuelwood an average of 88.10 cubic feet. Since the difference between these and the new pulpwood data is not significant it may be concluded that within the range studied, species exert no influence on the solid contents of stacked cords. Consequently, the data from all sources have been grouped and indicate an average solid content for split wood in the Pacific Northwest of 85.91 (S. D. plus-minus 9.54) cubic feet per standard cord. For all practical purposes, this may be considered as 86 cubic feet.

Relation Between Number of Sticks and Solid Contents

● In general, it is believed that the solid wood contents per



for longer felt life better quality more production

WESTINGHOUSE WET END DRIVES

If you expect felt to act as a belt for driving auxiliary rolls, you can expect higher felt costs and decreased production. A felt can only be made strong enough for efficient power transmission by sacrificing its water-removal and sheet-formation properties. The result is shorter felt life, poorer paper quality and more down time.

The remedy is simple—a Westinghouse principle proved in practice—the wet end auxiliary drive. It is equally applicable for sectional electric or mechanical drive machines. Where operating speeds are limited by the power-transmitting capacity of the felt, even one auxiliary power drive will permit increased operating speeds.

Westinghouse wet end auxiliary drives can reduce your felt costs by as much as $1.20 per ton of board—and increase your production and up paper quality at the same time. Complete information is contained in a new booklet, just published. Write today for your copy of B-3275. Westinghouse Electric & Manufacturing Company, Dept 7-N, East Pittsburgh, Pa

J-94605

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

WET END AUXILIARY MOTOR DRIVES

unit of stacked wood increases with an increase in the size of the average stick. In other words, the fewer the sticks per cord, the more closely do the solid contents approach the theoretical maximum which, of course, is never attained. Measurements made in Europe, in Canada, and in the eastern United States tend to confirm this relation between stick size and solid contents. In most of these cases, however, measurements were made on round sticks, and with bolts of practically identical size within a cord. Schnur's results indicate that in split wood there is no relation between stick size and solid contents. The more recent forest mensuration texts accept this view.

The relation between number of sticks and the solid wood contents of cords or split wood was determined. The solid contents of a standard cord were found to increase from 80 cubic feet in cords of 50 sticks to 88.5 cubic feet in cords of 105 sticks. Further increases in stick number, within the range studied, had no apparent effect on the volume of wood per cord. Since the data represent a good cross section of commercial piling practice, it is suggested that the arithmetical average (86 cubic feet per cord) is sufficiently accurate for all practical purposes, and the effect of stick size can be disregarded.

The standard deviation about the mean is considerably higher than in most investigations of this nature, but can be explained upon the basis of the procedure followed. In many previous studies of the solid contents of stacked cords the material was carefully piled in especially constructed racks so as to reduce variation to a minimum. In the present study measurements were made on ricks of various sizes as piled in the woods by cutters. Such ricks are subject to all possible factors affecting solid contents, prime among which are variations in the dimensions of the rick, irregularities in the sticks, care in piling (see Figures 1 to 4) and the range of stick size within individual ricks. Variations in rick dimensions would exert the greatest influence on solid contents, especially when ricks of various lengths were adjusted to a standard length of eight feet for comparison. That there are no consistent variations in solid contents which can be attributed directly to rick size is shown by the data presented in Table 1.

Table 1—Comparison of Solid Contents Per Cord in Ricks of Different Sizes

Size of Rick (Cords)	No. in Sample	Vol. per Av. Cord (Cubic Feet)
0.25	3	85.55
0.5	28	84.51
0.75	11	82.56
1.0	47	86.45
1.25	5	92.64
1.5	11	89.81
1.75	3	86.08
2.0	10	88.48
3.5	5	82.76

Table 2—Relationships Between Cords and M Ft. Log Scale in 32-Ft. Logs

(All data curved to eliminate irregularities)

Log Diameter (inches)	Cords per M ft. log scale		Bd. ft. log scale, per cord	
	Western Hemlock	White Fir	Western Hemlock	White Fir
8	3.2	2.9	310	340
12	2.8	2.4	360	410
16	2.4	2.0	420	500
20	1.9	1.8	520	570
24	1.8	1.6	595	610
28	1.7	1.6	640	640
32	1.6	1.6	640	640
36	1.6	1.6	640	640
40	1.6	1.6	640	640

Conversion of Log Scale to Cords

● Having determined the cubic feet of wood in an average cord, it is a simple matter to express this in terms of wood volume, either cubic feet or cords, per unit of log scale. In Table 2 the number of cords of wood per thousand feet, log scale, Scribner Rule in 32-foot hemlock and white fir logs of different diameters is presented. In deriving these data, actual log volumes for each diameter as measured in this and in previous studies were used. The difference between hemlock and white fir in the smaller diameters is attributed to differences in taper. The yield in cords was obtained by using the established factor of 86 cubic feet of wood per cord. From Table 2 it is evident that there are more cords in a thousand feet of small logs than in the same quantity of large logs. For example, there are 3.2 cords per M feet in 8-inch logs as compared to 1.6 cords in 30-inch and larger logs.

The same data are presented somewhat differently in the last two columns of Table 1 which show the number of board feet, log scale, in a cord of wood from 32-foot logs of different diameters.

The Degree of Utilization

● The proportion of the total tree was determined from measurements made in several different ways depending upon conditions at the time of measurement. The details of these will not be given here.

In second-growth western hemlock and Sitka spruce there is a rapid increase in the tree volume used from 45 per cent in 10-inch trees to 85 per cent in 21-inch trees. Utilization then gradually decreases until it is only 82 per cent in 30-inch trees, and becomes constant at that point in larger trees. From 3 to 6 per cent of the tree was left in the woods because of breakage or as long butts which were difficult to split because of interlocked grain. The percentage of total tree volume left in stumps increased steadily from about 5 per cent in 10-inch trees to 8 per cent in 47-inch trees, reflecting a tendency to cut high stumps because of interlocked grain in the butt swell. The volume left in tops formed 55 per cent of the tree volume in 10-inch trees, decreased to 11.5 per cent in 21-inch trees, and then increased to become constant 14.5 per cent.

The utilization of old-growth western hemlock and lowland white fir at Scio, Ore., had the same trends as did the Aberdeen sample, though utilization was decidedly better. The used portion in the larger trees was 88 per cent as compared to 82 per cent at Aberdeen. The stump formed slightly over 5 per cent of the total tree volume, the top 5.5 per cent in the large trees, and only one per cent was lost in breakage and in unsplit blocks.

The indicated differences in utilization between Scio and Aberdeen may or may not be significant. Measurements at Aberdeen were made late in the season after the wood had been removed, and it was impossible to obtain complete tree measurements. The used merchantable volume of each tree was obtained by subtracting the volumes of the stump, top, and unused merchantable volumes from the volume of an average tree of this height and diameter as given in a volume table. Consequently the degree of utilization might be somewhat higher or lower than indicated depending upon whether the volume of the individual tree was less than or exceeded the volume given in the table. It is believed that the data express the difference between the two operations, because of the practice of long-butting and of leaving large tops at Aberdeen.

The Yield Per Tree

The cords of wood obtained from trees of different sizes at Scio, Ore., and at Aberdeen, Wash., are shown in Table 3.

The effect of tree height on yield is shown by the increasingly greater yield in trees above 20 inches in diameter, a difference greater than that accounted for by differences in the degree of utilization.

Discussion of Results

● A study of pulpwood operations in western Oregon and western Washington has provided data useful to both industrialists and foresters, and has shown the need for further investigation of the problems encountered in providing raw materials for one of the growing industries in the Pacific Northwest.

An analysis of peeled split wood as stacked by cutters in the woods shows that the average standard cord contains 86 cubic feet of solid wood, regardless of species or of age of timber.

The solid contents of cords is but slightly influenced by the number of sticks and show an increase from 80 cubic feet in

Table 3—Expected Yield of Wood From Trees of Various Sizes

Tree Diameter (D.B.H.-Inches)	Old-growth Hemlock and White Fir (Cords)	Second-growth Hemlock and Sitka Spruce (Cords)
10	0.2	0.2
15	0.5	0.5
20	1.1	1.1
25	1.9	2.0
30	2.8	2.4
35	3.8	3.0
40	4.8	3.8
45	6.0	4.7
50	7.8	5.7

cords of 50 sticks to 88.5 cubic feet in cords of 105 sticks, beyond which point number of sticks has no apparent influence. This relation is of academic interest, and for practical purposes may be disregarded.

The yield in cords and in subic feet per thousand feet log scale in western hemlock and lowland white fir logs of different diameters has been determined. There is a variation of from 1 to 3 cords per M feet in 6-inch logs to slightly less than 2 cords per M feet in 30-inch and larger logs. The converse of this relation, the number of board feet, log scale, per cord in logs of different diameters has also been presented.

The degree of utilization in trees of different diameters appears to be dependent primarily upon the desire of the operator to obtain the maximum yield from his stumpage. It depends in lesser degree upon the splitting properties of the timber which may be either a species characteristic or may be influenced by rate of growth. In general, the per cent of the total tree volume actually utilized (except in markedly defective timber) varied from 35 or 40 per cent in 8-inch trees to 83 or 91 per cent in trees between 20 and 25 inches in diameter. In larger trees the utilization decreased slightly to become constant at 76 or 88 per cent, depending upon the area studied.

The yield in commercial and standard cords from trees of different diameters on the areas studied has been computed.

An interesting comparison of the degree of utilization and output per man hour could undoubtedly be made between cordwood operations and those removing a similar type of timber in the form of logs. One may lend itself to closer utilization both so far as tree size and the proportion of individual trees removed; one may have definite advantages insofar as cost of the pulp mill is concerned; one may yield a higher return to or provide more outlets for labor at the same f. o. b. mill cost; one may be better adapted to the practice of economic selective logging and to the practice of sustained yield forest management. The foundations for answers to these and other questions of similar magnitude and public interest have been established in the present study. Future investigations should complete the superstructure and provide data upon which to base intelligent solutions to the many problems involved in meeting the wood requirements of the pulp and paper industry.

●

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Pacific Pulp & Paper Industry, published monthly at Seattle, Washington, for October 1, 1944.

State of Washington, County of King,—ss.

Before me, a Notary Public in and for the State and county aforesaid personally appeared Miller Freeman, who, having been duly sworn according to law, deposes and says that he is the publisher of the Pacific Pulp & Paper Industry, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Miller Freeman, 71 Columbia St., Seattle 4, Wash.
Editor, Albert Wilson, 71 Columbia St., Seattle 4, Wash.
Business manager, Lawrence K. Smith, 71 Columbia St.,. Seattle 4, Wash.

2. That the owner is:

Miller Freeman Publications, Inc., 71 Columbia St., Seattle 4, Wash.

(Stockholders) Miller Freeman, Kemper Freeman, Wm. B. Freeman, Miller Freeman, Jr., L. K. Smith, W. E. Crosby, Harry P. Cain, all of 71 Columbia St., Seattle 4, Wash.

3. None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

MILLER FREEMAN, Publisher.

Sworn to and subscribed before me this 25th day of October, 1944.

G. E. DELAWARE.
(My Commission expires May 20, 1945)

WOOD IS STILL THERE

Decades have passed since steel supplanted wood in the hulls of ships. Yet no victory vessel could complete its errand for freedom without wood, or the products of wood. From shipyard shoring timbers to wood-packaging and wood-derivatives in the vital cargo itself, timber products are more critical than ever.

VICTORY, YOUR JOB AND OURS

Your skill and efficiency in helping America's great forest lands fight for freedom and your determination to produce to the limit are the kind of Citizen-Soldier backing our fighting men deserve. To aid you in your essential work your Associated representative offers his timely and expert knowledge of lubricating problems. Ask him to show you how specialized lubricants, such as Associated's Cadel A. P. (All-Purpose) Heavy Duty Lubricant, have been developed to meet the difficult conditions encountered in wartime's expanding production. His advice, backed by "on the job" experience, makes him invaluable now—a good man to know for your post war planning.

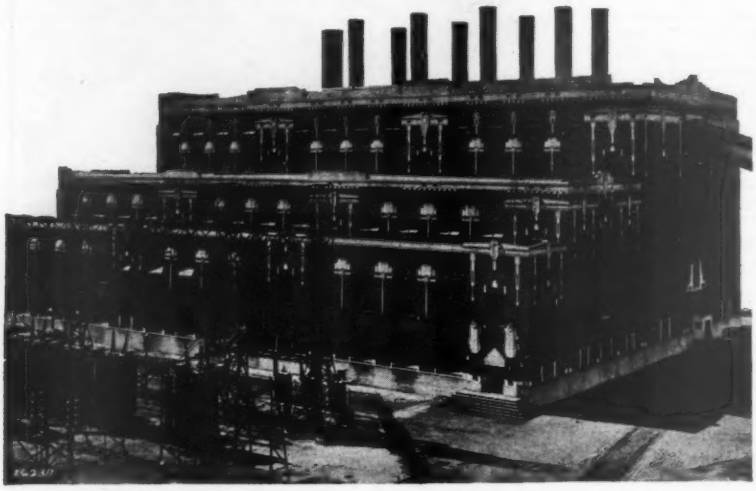
LISTEN TO ASSOCIATED FOOTBALL SPORTCASTS

TIDE WATER ASSOCIATED OIL COMPANY

Gasoline Powers the Attack—Don't Waste a Drop!

Cadel A. P. Heavy Duty Lubricant • Cycol Industrial Lubricants • Veedol and Tydol Motor Oils Associated Aviation Ethyl and Flying A Gasolines Fisk Tires • Aero Batteries

For the modern POWER PLANT



Buell (van Tongeren) Dust Recovery Systems

• THIS POWER PLANT has a total generating capacity of 111,000 KW, including 37,500 KW from a new turbo generator served by a 400,000-lb.-per-hr. Combustion Engineering boiler. The boiler, fired with pulverized coal, develops steam at 875-lb. pressure and 900° F.

The 32 Buell (van Tongeren) cyclone flue dust collectors installed with this new boiler have proven satisfactory under actual operating conditions, giving high collection efficiency and requiring no maintenance during the two years they have been in operation.

Power plant engineers are invited to write for the interesting, illustrated book—"The Buell (van Tongeren) System of Industrial Dust Recovery." Ask for Bulletin G-842.

BUELL ENGINEERING COMPANY, INC.
70 Pine Street, New York 5, N. Y.
Sales Representatives in Principal Cities

buell
DUST RECOVERY SYSTEMS

DESIGNED TO DO A JOB, NOT JUST TO MEET A "SPEC"

Does This Put Crimp In China Postwar Market?

• A vast and widely scattered handmade paper industry in China is so well suited to needs of the people that demands for western-styled paper are comparatively small, according to Foreign Commerce Weekly, publication of the U. S. Department of Commerce.

It points out that it would be impossible to determine total production or consumption of hand-made paper in China. Individually operated mills numbering 30,000 or more use neither machinery nor modernized methods, while thousands of Chinese farmers make paper for their own use during off-seasons.

In larger cities Occidental customs have been adopted. For example, Shanghai and surrounding area boasted 26 modern machine-equipped paper mills before the war and there was a trend toward the use of movable steel type and western styles of writing and printing. In the rural areas, however, old habits and customs persist.

Many strange and fascinating customs of the Chinese require the use of large quantities of paper. The raw materials found in greatest abundance—bamboo, rice straw and mulberry bark—are all too long-fibered, too tough textured and too irregular to be processed successfully by mechanical means, it is said.

General Electric Announces New Boxboard Tester

• A new boxboard tester for accurately determining the strength of fiber boxboard and similar materials has been announced by the special products division of the General Electric Company.

The new tester will determine the strength of boxboard from .014-inch liner to .140-inch solid kraft, as well as waterproof boxing material used for oversea shipments which must withstand rough handling and extremes of moisture and temperature. It will also measure the strength, without deforming or flattening the corrugations, of corrugated board, as well as thin plywood and vulcanized fiber.

Mounted on a metal base, the tester has only one moving part. It consists of a pendulum on the end of which is a rod bent to form an arc of 90 degrees, with a triangular metal point one inch in height at the end. This point is shaped like the corner of a box in order to simulate actual shipping conditions, since the majority of boxes damaged in transit are punctured by the corners of other crates and boxes being forced against them. The unit holds the material to be tested firmly between two clamping plates which are level with the axis of the pendulum. The pendulum is operated by a trigger, and as this is tripped and the released pendulum swings through its arc, the number of degrees less than 180 degrees through which it swings is a measure of the energy dissipated in puncturing and bending the material being tested. The tester's scale, which has an indicating hand, is calibrated so that the reading is the actual inch-ounces per inch of tear made during the test.

Rudesill Not Returning

Clayton Rudesill, captain in the U. S. army, has been returned to reserve status. He was employed in the technical department, Crown Zellerbach Corp., Camas, Wash. Upon receiving his discharge in California, he decided to go into business there for himself.

Some Ways and Means Of Saving Heat

● A recent issue of the The World's Paper Trade Review, published in London, makes suggestions on how the industry can combat the critical fuel shortage in Great Britain. These suggestions on saving heat are just as applicable in mills on this side of the Atlantic:

The heating system can be a big steam waster. It may be wasteful at several points and for several reasons. Individually, the causes and the losses may seem small; collectively they may be making a large hole in the coal pile.

Here are a few ways in which you can cut out wastage at once:

See that room thermometers are checked at least four times in every working period, so that the heating system can be controlled to maintain, as near as possible, the minimum temperature needed in each room. Remember that if the temperature rises only one degree higher than is needed it can run away with 5 per cent of the fuel used.

See that doors are not left open needlessly and that windows are not opened just to cool the place down. Wherever possible to fix up something to make the frequently-used doors self-closing: in any event, see that they can be colsed easily.

If you have a unit heater system it may have been the custom, in holding back a rising temperature, to switch off the heater fans but to leave steam on. This means that heat is lost through the roof and steam is being used to no good purpose. Wherever practicable, the steam should be shut off as well as the motors.

Have you considered shutting off the whole of the system some time before the end of the working period? A quick experiment will show just how early it can be done without causing discomfort. Even if you save no more than half-an-hours' heating every day you will save a fair amount of coal.

A final point: check the working steam pressure on the system; perhaps you can cut it down a pound or two.

Plenty Paper On P-T Boats

● Taking the P-T boats as just one example, paper is used in seventeen different forms on that small but effective warcraft, namely—paper towels and tissue, first aid kits, paper cups, navigation charts and forms, log books, fire extinguisher instructions, torpedo manuals, wiring diagrams, fuel system charts, flares, fuses, radio charts, radio manuals, emergency rations, food containers, power plant manuals and ordnance manuals.

C. L. Knerr Is Honored

● C. L. Knerr was the recipient of a 30 year service pin early this month with appropriate ceremonies held in his department at the Crown Zellerbach Corp. head offices, San Francisco.

Born in Green County, Ohio, in 1862, Mr. Knerr will be 82 years of age in December, but nevertheless he commutes across the Bay each business day for a full day's work in the insurance department of the company. He came to work for the corporation on Oct. 1, 1914.

No More Paper Slippers

There's really a paper shortage, folks! Herman Berg, of the California-Oregon Paper Mills, Los Angeles (also representing the Sveen-Pederson save-all in America, says he can't get paper slippers at his Turkish bath anymore.

POSITION WANTED as superintendent bleached kraft or soda pulp mill. Graduate chemical engineer, 20 years' experience development and supervisory capacity. Thoroughly experienced in mechanical maintenance and operation latest equipment. Technical paper mill experience. Reply Box 11, Pacific Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

ENGINEER WANTED — Permanent research and development work on forest products. Under 40. College trained —prefer E.E. or M.E. Some travel. Reply giving complete background and experience including draft status. Reply Box 12, Pacific Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

Buys Camas Newspaper

Lee N. Slinkard, former retail advertising manager of the Indianapolis, Ind., Times, has purchased the Post-Record, weekly newspaper of Camas, Wash., home of the biggest Crown Zellerbach industry, from E. F. Gick. Mr. Slinkard, born in Bloomfield, Ind., attended Dartmouth and the U. of Indiana and has been in advertising work since 1931.

Sound Movie Available

● A sound movie entitled "Timber for Tokyo"—running 20 minutes and depicting importance of wood and paper (although bringing paper in only briefly) can be rented from the Army Incentives Div., Public Relations Dept., Pentagon Bg., Washington, D.C., for $1. It comes in 16 and 35 mm. size.

Synalite Reports

EXCELLENT MECHANICAL GOODS SERVICE

Synalite is Pioneer's Super-Synthetic Rubber Compound

PROPERTIES		Synalite	NATURAL RUBBER
Tensile Strength		Good	Excellent
Resilience (Snap)		Good	Excellent
Flexibility		Excellent	Excellent
Adhesion to Metals		Excellent	Excellent
Adhesion to Fabrics		Excellent	Excellent
Resistance to	Abrasion	Excellent	Excellent
	Heat	Excellent	Good
	Cold	Excellent	Very Good
	Compression Set	Good	Excellent
	Oils	Excellent	Poor
	Chemicals	Excellent	Good
	Sunlight	Excellent	Fair

Research to improve on this record is continuing right now, and every day in Pioneer's development laboratory—to insure you the best possible service from available synthetic rubbers. Remember—Pioneer is working with all the basic Synthetic Rubbers to develop the best possible compounds for use in your Industrial Rubber Goods. Pioneer Rubber Mills, 353 Sacramento St., San Francisco, 11, Cal.

322 Occidental Avenue, Seattle, 14, Washington.

682 1010 "A" Street, Tacoma, Washington. 400 S.W. First Ave., Portland, Oregon.

PIONEER

Job Tailored BELTING • HOSE • PACKING

Du Pont Announces V-Box Adhesive

● Announcing a new adhesive developed by the Du Pont Company for improved weatherproof boxes, Dr. J. S. Fonda, Grasselli chemicals department chemist, said "fiberboard containers are now meeting government specifications well beyond the imagination of the industry less than two years ago."

Today paper-boxed food, machinery and vital materials are shipped overseas exposed on decks to weather. Delivery can be safely completed, if necessary, by floating paper containers in with the tide. These boxes will bear the weight of the contents after prolonged wetting, which may be often repeated in the tropics where dock and warehouse facilities are at a minimum.

The new packaging material is made of four to eight sheets of heavily sized paper laminated, or "glued," together with a water-soluble vinyl resin. Containers are fashioned on standard fiberboard box machinery which may be operated at full speed without any special equipment, adjustments or added labor, said Dr. Fonda. Boxes appear to be identical to the common, everyday variety, most of which disintegrate rapidly when wet. The new ones pass 24-hour submersion tests.

Dr. Fonda pointed out that some types of the weatherproof box should have post-war value in air transportation because of relative lightness and lack of bulk.

"Where moisture condensation is a problem—in removal from cold storage, for example—this material is the answer. It represents no re-pulping difficulties, nor is there anything in the package that will corrode metallic contents."

Waterproof Paper Increase

The acid-free, grease-proof wrapping papers, used by the U. S. Army Ordinance Department to protect metal surfaces from corrosion, equal from 12 to 15 million square yards per month . . . enough to cover 37,000 acres in a year. The U. S. Army and Navy are using additional amounts. Two years ago, the paper industry produced something like 16,000 tons of waterproof paper. Today, it is producing more than 200,000 tons.

Cellulose Acetate Packages

● Cellulose acetate sheeting is being fabricated into attractive packages at the plant of Plastic Specialty Co., San Francisco. Stanley Hart, owner-manager, was formerly in the paperbox field.

Mr. Hart's plant is equipped to make a wide variety of sizes and shapes of plastic boxes, for such fields as foods, cosmetics, novelties, etc. In addition, the company makes name-plates, signs and similar products with laminated cellulose acetate.

Westinghouse Industry Manager

● R. A. Neal, vice president of the Westinghouse Electric & Mfg. Co., has announced appointment of J. H. Jewell as manager of the industry departments of the company. Mr. Jewell has been a member of the Westinghouse organization since joining the company in 1920 as a sales student.

Barrett Moves Office

Ed R. Barrett, executive administrator, Northwest district, A. O. Smith Corp,, has moved his headquarters from the Vance Building to 824 White Building in Seattle.

Electricity Gives Resistance To Melamine Resin Paper

● Calco Chemical Div., American Cyanamid Co., says in "Dyelines and Bylines":

"The secret behind wet-strength paper's great resistance to rubbing when wet is a mere matter of electricity. It seems that the colloidal melamine resin particles in wet-strength paper pulp have a positive electrical charge by which they attach themselves to the negatively charged cellulose fibers, forming an insoluble bond. Thus the ability of the paper to resist rubbing when wet. Aside from their extensive use for bags and packages of all kinds, wet-strength papers can also be used for paper towels which are rinsable, dryable and re-useable."

The Calco Chemical Division's melamine resin products are being successfully used in a strong paper wiping rag made for the U. S. Navy.

Hercules to Expand Ethyl Cellulose Plant

● Expansion of its ethyl cellulose plant at Hopewell, Virginia, by Hercules Powder Co. is under way. The plant, producing cellulose material for ammunition, aircraft and other uses, will be increased over 60 percent of present capacity. Included in the expansion will be construction of an ethyl chloride production unit for conversion of by-product materials of the ethyl cellulose plant.

Military uses for the ethyl cellulose produced at the Hopewell plant include rocket assemblies, shell ignitors, other ammunition parts, aircraft parts, lacquers, flashlights, plastics wrapping known as "plastics peel" for spare parts for aircraft, autos, trucks and other machinery used at the front, and other uses which cannot be divulged for reasons of military security.

Camas "Old Timers" See Early Day Scenes

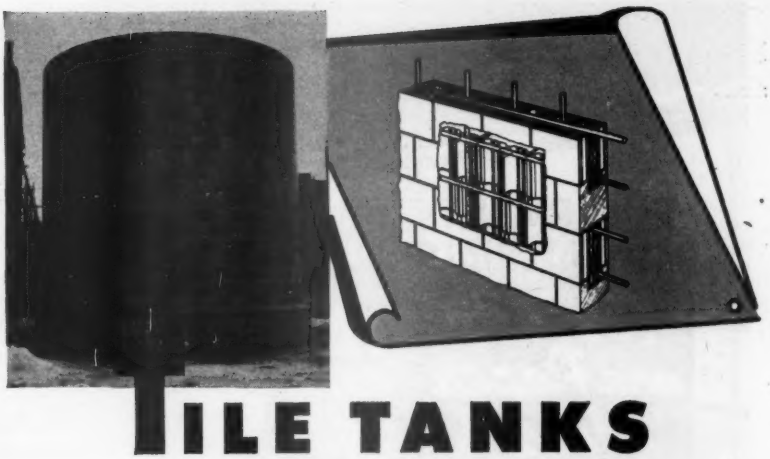
● On Sept. 21, a potluck dinner for the "Old Timers," 25-year club of the Camas, Wash., division of Crown Zellerbach Corp., was given at Nora Self Hall in Camas. An old time orchestra was impressed into service after the meal, and some of the earlier dances were enjoyed.

Pictures were presented to the group through a baloptican showing scenes from the time the mill first started in 1883, including the mud in the streets of Camas as well as the two cows which constituted the total milk supply of the town at that time.

Stetson a Captain

Francis A. Stetson from the Crown-Z-mill at Camas, has been promoted from first lieutenant to captain at the eighth air force heavy bomber base in England. Captain Stetson has been awarded the air medal and four oak leaf clusters for "meritorious achievement" for participating in bombing attacks.

He was accountant clerk in the Camas office.



TILE TANKS

. . . That can be constructed with a minimum of critical materials and installed without delay.

Stebbins tile tanks are erected from Semtile blocks, which are hollow salt glazed tile, cored in two directions so as to permit the use of both horizontal and vertical reinforcing. When laid in a wall and reinforced, the cores are solidly filled with concrete so that the resulting structure is in reality a reinforced concrete wall, faced on both sides with Stebbins glazed tile.

This type of construction has long life, keeps products free from contamination, flushes clean quickly and requires a minimum of maintenance.

For peace of mind call in Stebbins—the organization that for sixty years has devoted itself exclusively to lining and tank problems.

SEMCO
Stebbins Engineering Corporation
TEXTILE TOWER SEATTLE, WASHINGTON

Billions of Envelopes for U. S.

Before the war, the U. S. Government's annual normal requirement for envelopes was in the neighborhood of 500 millions of varied sizes and kinds. Since Pearl Harbor, this figure has soared to nine billions a year for all of the various agencies, or 18 times as many.

Some Addresses

A couple of addresses of former well known men of the Technical Dept., Crown Zellerbach Corp., Camas:

Lt. Francis W. Flynn, USNR, USS Charger (CVE-30), c/o Postmaster, N.Y.

Forrest E. Williams, S1/C, CBMU 598, Pla. 3, c/o Postmaster, San Francisco.

DON PERSONS, of Technical Dept., Crown Zellerbach Corp., Camas, Wash., recently home on leave from South Pacific. MRS. PERSONS (right) is working as Beater Tester in same department while her husband has returned to fight the Japs.

GOING BACK to Horse and Buggy Days

By unifying 155 little shoestring operations of the "horse and buggy days" into an integrated system, Puget Power increased efficiency, improved service, constantly lowered rates. Referendum 25 chops this unified system into 19 or more uneconomic and inefficient little pieces, each with its own fuzzy-wuzzy ideas, power politics and consumer headaches.

You won't get where you want to go with cheap and dependable electric service if "25" takes you for a ride.

PUGET SOUND POWER & LIGHT COMPANY

PORTLAND ♦ SAN FRANCISCO

Wherever Paper Travels

—keep it rolling on Elwell-Parkers

Throughout the Paper Industry, capable Elwell-Parker Electric Trucks and Cranes are speeding the movement of bales, bundles and rolls in huge volume. All day and all night these Elwell-Parkers transport their loads through the progressive steps shown in the diagram.

Elwell-Parker for many years has studied the needs of each division in the Paper Industry —has successfully developed and furnished Trucks with Attachments for Paper alone.

The E-P Man—your Paper Transportation Advisor —will help you find ways to short-circuit wastes of Time—Motion—Dollars. Consult him *in advance* of your new project developments.

A new Elwell-Parker Fleet—as many Electric Trucks or Cranes as needed to do a real job handling all of your loads—will pay for itself quickly.

The Elwell-Parker Electric Company, 4231 St. Clair Avenue, Cleveland 14, Ohio.

Seattle 4: COLBY STEEL & ENGINEERING COMPANY
525 Central Building Telephone: ELliott 5722

San Francisco 5: IRA G. PERIN
575 Howard Street • Telephone: GArfield 1827

LOS ANGELES 15: 1612 Maple Avenue
Telephone: PRospect 3911

ELWELL-PARKER
POWER INDUSTRIAL TRUCKS

Marshall and Barr

Consulting Industrial ENGINEERS

Consultation, Design, Specifications, Production and Management Problems

HARRY L. MARSHALL CHARLES M. BARR

Lloyd Building, Seattle 1, Washington

O. C. SCHOENWERK

Consulting Engineer

3240 LAKE SHORE DRIVE
CHICAGO, ILLINOIS

Pulp and Paper Mill Design — Construction

ARTHUR J. NORTON

Consulting Chemist

Resins, Plastics and Chemical Research Development

2919 First Ave. So. Seattle, Wash.

GEORGE F. HARDY

Consulting Engineer to the Paper Industry Since 1900

305 Broadway, New York 7, N. Y.

Member—Am. Soc. C. E.—Am. Soc. M. E.—Eng. Inst. Can.

Consultation—Reports—Valuations—Estimates. Paper and Pulp Mills —Hydro-Electric and Steam Power Plants—Plans and Specifications.

PULPWOOD CLEANING MACHINES
★ ★ ★ BARKERS ★ ★ ★
KNOT BORING and ROUTING MACHINES
CONCAVE KNIFE AND BROUTING BIT GRINDERS
★ ★ ★
STETSON-ROSS MACHINE CO.
SEATTLE, WASHINGTON

PULP—

PERKINS-GOODWIN COMPANY

Established 1846

30 Rockefeller Plaza, NEW YORK, 20

Suite 3805

—PAPER

R. E. CHASE & CO.

TACOMA BLDG., TACOMA, 2
PHONE MAIN 4281
BRANCHES IN
SEATTLE & PORTLAND

EQUIPMENT FOR . . .
CHEMICAL ENGINEERING
STEAM POWER GENERATION
DUST CONTROL

Hardy S. Ferguson & Co.

Consulting Engineers

200 Fifth Avenue, NEW YORK 10, NEW YORK

Hardy S. Ferguson.....Member A.S.C.E., A.S.M.E., E.I.C.
Moses H. Teaze.....Member A.S.M.E., E.I.C., A.S.C.E.

Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of

Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants
Dams and other Hydraulic Structures.

No matter what your recovery problem

...DUST ...FUME
...FLY ASH ...MIST
...FOG

the COTTRELL Electrical Precipitator provides highest efficiency at lowest overall cost!

LONG LIFE: There are no moving parts in the collecting structure of a Cottrell, therefore no wear. Installations made over 30 years ago are still operating without substantial change.

99+% RECOVERY: Even on ultra-fines Cottrell efficiencies exceed 99+%—closely approaching theoretically perfect performance!

ANY CAPACITY: Whether gas flow is a few c.f.m.—or millions—the Cottrell will handle any recovery job, large or small!

LOWEST MAINTENANCE: The Cottrell has no filters, no screens, no parts that require frequent repair, replacement or service.

LOWEST DRAFT LOSSES: Cottrell draft losses are lower than any other recovery equipment—only a few tenths inch of water!

WHETHER *your* recovery problem involves purification of gases, nuisance abatement, or collection of values now being lost in discharge gases, find out the *many* important advantages COTTRELL Precipitators offer. Let our trained engineers study your requirements.

•

Send for this COTTRELL booklet!

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1017 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 140 S. DEARBORN ST., CHICAGO 3
HOBART BUILDING • SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

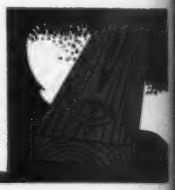
Continuous-stave fir pipe, Wolmanized for durability

WOLMANIZED Douglas Fir LUMBER

WOLMANIZED* FIR PIPE has all the advantages of wood-stave pipe, *plus* thorough impregnation by the vacuum-pressure process with a preservative that defeats decay attack without sacrifice of cleanliness. Like Wolmanized fir roof decks, vats, hoods, and other mill installations, this is a Wauna specialty.

*Registered Trademark

WAUNA LUMBER COMPANY
Wauna, Oregon



Write today!

CAMACHINES For Better Roll Winding

CAMERON MACHINE COMPANY

This interesting folder describes the working ranges of twenty-eight types of slitters and roll winders used in the paper manufacturing and converting industries for making better rolls.

Write for your free copy today.

CAMERON MACHINE COMPANY, 61 Poplar Street, Brooklyn 2, New York
MIDWEST OFFICE: Harris Trust Building, 111 West Monroe Street, Chicago 3

INDEX OF ADVERTISERS

A
Alaskan Copper Works 62
American Cyanamid & Chemical Corp. 45
American Potash & Chemical Corp. 57
Appleton Machine Co. 3
Appleton Wire Works 58
Appleton Woolen Mills 61

B
Bagley & Sewall Co. 62
Black Clawson Co.: Divisions: Shartle Bros. Machine Co., Dilts Machine Co. 2
Buell Engineering Co., Inc. 52
Bulkley, Dunton Pulp Co. 1

C
Cameron Machine Co. 64
Chase & Co., R. E. 63
Chromium Corp. of America 62

E
Eastwood-Neally Corp. 53
Edison Storage Battery Co. 61
Electric Steel Foundry Co. 39
Elwell-Parker Electric Co. 56

F
Ferguson & Co., Hardy S. 63
Freeport Sulphur Co. 59

G
General Electric Co. ..... 40 and 41
Great Western Division, Dow Chemical Co. 37

H
Hardy, George F. 63
Hesse-Ersted Iron Works 60
Hooker Electrochemical Co. ..... Otuside Back Cover

I
Instrument Laboratory, Inc., The 62

J
Johnson Corp., The 62
Jones & Sons Co., E. D. 62

K
Kalamazoo Vegetable Parchment Co. 34

L
Lyddon & Company, Inc. 53

M
Marshall & Barr 63
McMaster, Leonard 59
Merrick Scale Mfg. Co. 62
Monsanto Chemical Co. ..... Inside Back Cover

N
Nash Engineering Co. 61
National Aniline Division Allied Chemical & Dye Corp. 57
Northwest Filter Co. 62
Norton, Arthur J. 63

O
Orr Felt & Blanket Co. 58

P
Pacific Coast Supply Co. 56
Pacific Gear Works ..... Inside Front Cover
Pacific Gear & Tool Works ..... Inside Front Cover
Paper & Industrial Appliances, Inc. 47
Perkins-Goodwin Co. 63
Pioneer Rubber Mills 54
Puget Sound Power & Light Co. 55
Pulp Bleaching Co. 62
Pusey & Jones Corp. 62

R
Rayonier Incorporated 42
Ross Engineering Corp., J. O. 62

S
Schoenwerk, O. C. 63
Shuler & Benninghofen 60
Simonds Saw and Steel Co. 59
Smythe, Ray 61
Soundview Pulp Co. 4
Stebbins Engineering Corp. 55
Stetson-Ross Machine Co. 63

T
Texas Gulf Sulphur Co. 61
Tide Water Associated Oil Co. 51

W
Waterbury & Sons Co., H. 62
Wauna Lumber Co. 64
Western Gear Works ..... Inside Front Cover
Western Precipitation Corp. 64
Westinghouse Electric & Mfg. Co. 49
Weyerhaeuser Timber Co. 62